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DAIRY, FOOD AND ENVIRONM

Sanitation

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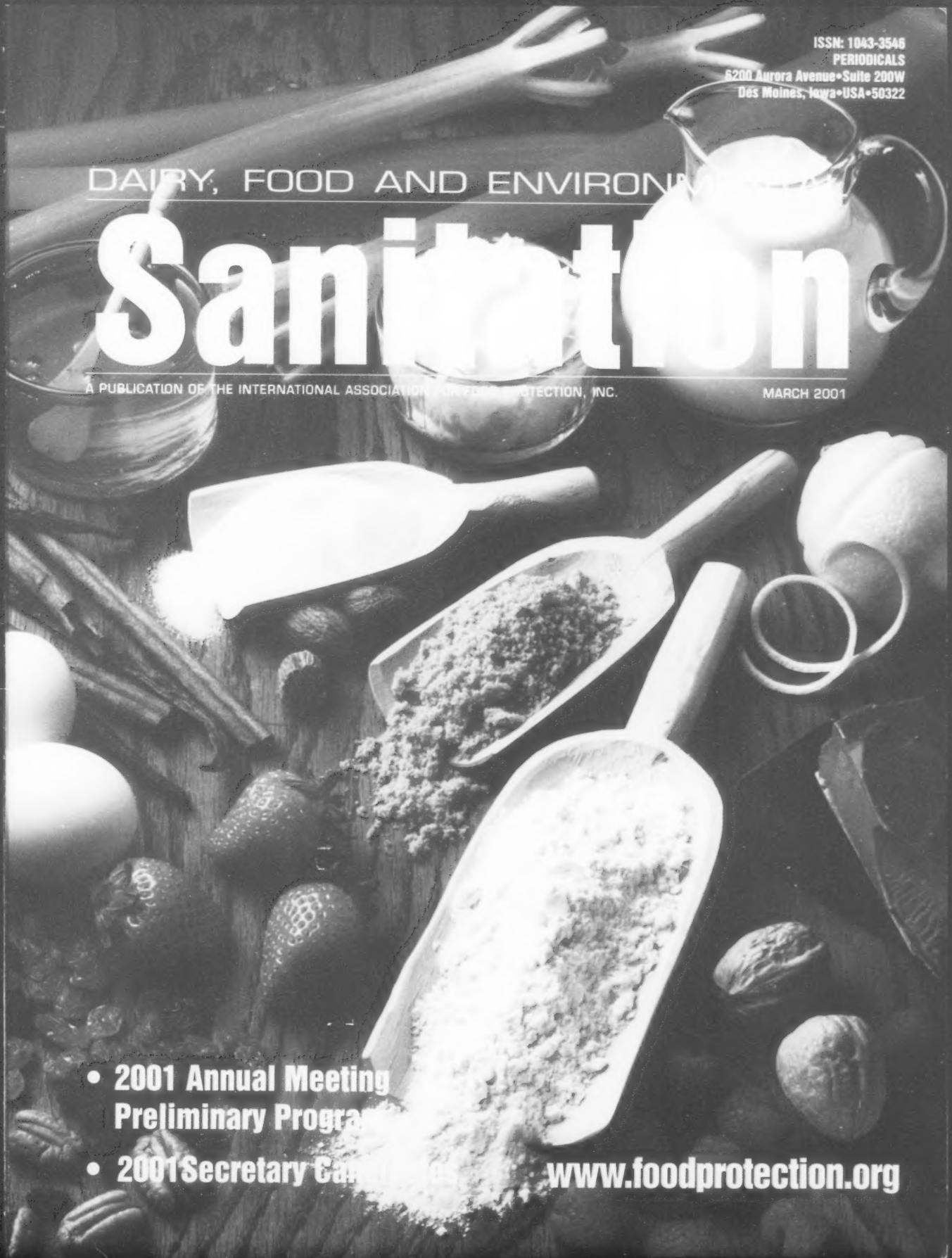

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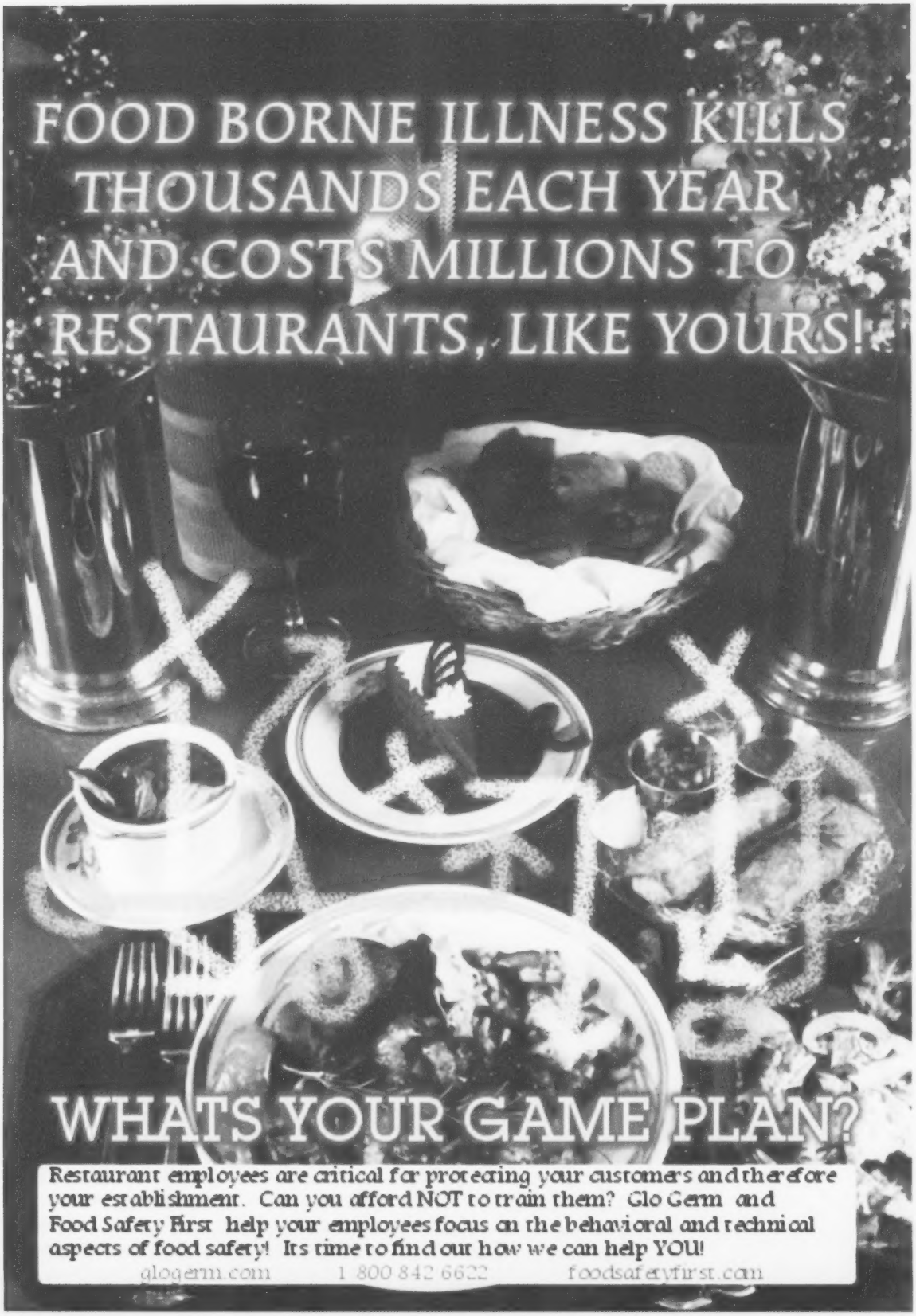
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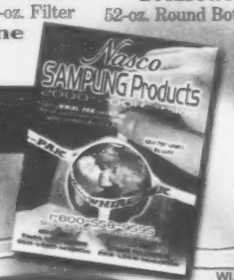

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Editor's Note:

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My Perspective

By JENNY SCOTT
President

"We hope you will join us this August in Minneapolis for what I'm sure will be one of the best programs IAFP has ever held"

Although it's early in the year, the final program for this August's meeting of IAFP is coming together quite well. For those of you who are not familiar with the process, let me review it for you briefly.

We begin planning for the program a year in advance – at the prior year's Annual Meeting. The Program Committee meets twice during the Annual Meeting to discuss ideas for symposia. Many of these ideas are forwarded to the Program Committee by the Professional Development Groups that meet at the Annual Meeting. The Program Committee reviews the proposals, and may suggest modifications or recommend that two groups work together to further develop similar subjects into a single symposium. Between the Annual Meeting and the January meeting of the Program Committee, organizers "flesh out" the various symposia, identifying speakers and the titles of their presentations and developing an abstract for each symposium. These are forwarded to the IAFP Program Committee Chairperson. This year's Chairperson is Dr. Stan Bailey of USDA/ARS in Athens, Georgia. The Program Committee meets at the site of the Annual Meeting in mid- to late-January. Obviously, it takes a very dedicated group of volunteers to come together in Minneapolis in January!

The Program Committee met January 19-20 and reviewed the final symposium submissions. Prior to the meeting they also reviewed all of the abstracts that were submitted for presentations. At the meeting, final decisions were reached on whether an abstract would be accepted for presentation at the Annual Meeting. The abstracts were organized into oral and poster technical sessions. Symposia were examined to determine which symposium would best fit as the general session. The remaining symposia were then organized into the various time slots available, with an attempt being made to avoid overlap of subjects. Unfortunately, it has become impossible to schedule sessions so that they are not competing for the same audience; invariably we get complaints about needing to be in two or more sessions at the same time. (We've already heard some of these from Program Committee members themselves!)

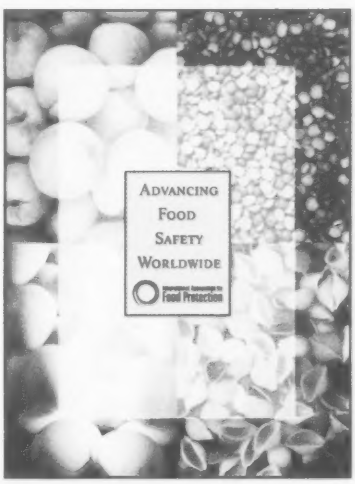
The Program Committee also had to evaluate potential attendance at each symposium in order to assign the symposia to the available rooms based on the number of people the rooms will hold. (If we guessed wrong, people won't be able to get into a session or the room will look empty – neither of these situations is desirable.) Once this was done, the symposia were again examined and the schedule adjusted to try and minimize any conflicts with subject matter – two HACCP sessions should not be scheduled at the same time, etc. Finally, once these were all arranged, it was necessary to determine

which symposia had speakers that were also speaking in other symposia and to adjust the schedule in order to avoid conflicts for the speakers. (Hopefully we caught them all.)

This entire process is a very challenging task, but the final program was organized in less than 1-1/2 days, thanks to a very efficient Program Committee. IAFP 2001 promises to have something for everyone. There will be symposia on the following topics (and more):

- Dairy Plant HACCP
- Extended Shelf-Life Milk Products
- Microbial Risk Assessment
- *Mycobacterium paratuberculosis*
- Irradiation
- Food Allergens
- Pathogens in Fresh Fruits and Vegetables
- Water Quality
- Zero Tolerance for Pathogens
- Food Safety Objectives
- Food Safety in the Digital Age
- Communicating Science Effectively
- The USDA Competitive Grants Program and Awards Process

As you see, there will be plenty to keep attendees interested at the Annual Meeting. The Program Committee left one slot open for a last minute "hot topic." I urge you to go to **www.foodprotection.org** to check out the program. You will also find a registration form for this year's meeting. No need to wait until the last moment – go ahead and sign up now (you can register online). The meeting will be held at the Hilton Minneapolis located in the heart of downtown and connected by the skyways to many other downtown locations. There are lots of shops and restaurants, and it's only a few blocks to the Mississippi River. Our Monday Night Social will be a dinner cruise on the river. For baseball fans, the Minnesota Twins will be playing the Kansas City Royals Saturday and Sunday nights (you're on your own here) and the Cleveland Indians Tuesday, Wednesday and Thursday (IAFP has planned an excursion for the Tuesday night game). We hope you will join us this August in Minneapolis for what I'm sure will be one of the best programs IAFP has ever held.



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COMMENTARY

FROM THE EXECUTIVE DIRECTOR

By DAVID W. THARP, CAE
Executive Director

"Whatever you do don't miss this year's Annual Meeting"

Minneapolis in January! Just to mention Minneapolis during the winter months brings to mind – COLD! This past January was no exception. When the Program Committee met toward the end of January, temperatures ranged from 8° below zero to 20°F with wind chill factors sometimes reaching 30° below zero! We were fortunate to make it in and out of Minneapolis without encountering a major "snow event."

Under the leadership of Stan Bailey, USDA/ARS, Athens, Georgia, the Program Committee conducted their work in the comfort of the Hilton Minneapolis. The Committee met over two days with the Executive Board meeting following for two additional days. All meetings took place in the hotel where it was a balmy 72 degrees! Jenny Scott covered the results of the Program Committee meeting in this month's President's Column and the Highlights of the Executive Board meeting are presented on page 227 in this issue, so I have the pleasure of introducing you to Minneapolis in this month's column – to be experienced during warmer times.

We recognize that IAFP 2001's program content is the reason to attend the Association's 88th Annual Meeting. But Minneapolis has so much to offer it would be a shame to not take advantage of the many opportunities. Minneapolis is a truly cosmopolitan city with every type of entertainment available right at the doorstep of the Hilton Minneapolis. The Walker Art Center and the Minneapolis Institute of Arts will satisfy art lovers. The Theatre District offers Broadway shows, the Warehouse District offers nightclubs with all variations of music and dancing, and sports abound in Minneapolis, the "City of Lakes."

Nicolett Mall, a 12-block pedestrian mall with unique shops and restaurants is just one block from the Hilton. If the temperatures outside during August exceed the normal 81° and it becomes too hot, the "Skyway" system of elevated, indoor building connectors provides a convenient, climate-controlled way to walk around downtown. You may choose to use the Skyway, the sidewalks or a taxi to reach one of more than 275 restaurants in downtown that offer food of all ethnic varieties in all price ranges from economical to five-star dinning. The shopper in you might be drawn to the world-famous "Mega-Mall" to shop 'till you drop. An express bus will take you there for only $1.50! So much to do, so little time. Plan now to come early or stay late to take advantage of all that Minneapolis offers!

If you can only come for the Meeting itself, we have arranged a variety of events that allow you to experience Minneapolis. Beginning at 7:00 p.m. Sunday evening (August 5), the Opening Session kicks off the Annual Meeting, followed by the Cheese and Wine Reception in the Exhibit Hall. Be on hand to share memories of past Meetings with old friends and to meet new colleagues. It is a great way to start the "World's Leading Food Safety Conference."

Monday after sessions conclude, an informal Exhibit Hall Reception takes place. Don't miss this opportunity to meet and greet exhibitors and colleagues after a day of invigorating presentations. The Reception is followed by the traditional Monday Night Social. A Mississippi Dinner Cruise awaits Social attendees this year. Watch the hustle and bustle of downtown Minneapolis wind down, while relaxing on the deck of our riverboat as we pass under the James J. Hill Stone Arch Bridge and through the northern most lock on the Mississippi River. This is a cruise experience you will long remember!

On Tuesday evening, you may choose to join friends for a night at the Hubert H. Humphrey Metrodome to watch the Minnesota Twins take on the Cleveland Indians in a game of baseball. Also, a limited number of attendees will be able to attend the "Cadillac of Dinner Theaters," the Chanhassen Dinner Theater. Word is that the show may be "My Fair Lady." We will know for sure as we get closer to the actual show date.

The Annual Awards Banquet takes place on Wednesday night. Be on hand to honor Members recognized for their contributions to the Association and excellence in food protection. The Awards Banquet concludes the Annual Meeting and thus, concludes a summary of evening events for IAFP 2001 – the Association's 88th Annual Meeting. We hope that you will make every effort to be with us this August. For up-to-date program information, visit the Web site at www.foodprotection.org. Online registration is available again this year.

We encourage you to bring friends and family with you to Minneapolis so that they may enjoy the city. Daytime tours are offered for their enjoyment. Abbreviated descriptions are shown on page 250 and expanded, detailed descriptions are available on our Web site. You may want to join a post-meeting tour to the inland port of Duluth and Lake Superior, one of the Great Lakes.

Whatever you do, don't miss this year's Annual Meeting. The events supplement the program and provide extraordinary opportunities to establish lifelong, professional contacts with food safety professionals from around the United States, North America and the World! Come to Minneapolis it is sure to be a great conference – we will even guarantee that there will be no temperature readings below zero in August!

PRE-MEETING WORKSHOPS

Friday–Saturday
August 3-4, 2001

Applying Advanced Techniques to HACCP Systems

Critical Steps in Laboratory Methods for the Detection of *Listeria monocytogenes*

Saturday, August 4

Crisis! Recall Management in the Food Industry

More details will be available in the April issue of *DFES*, or visit our Web site at **www.foodprotection.org** for the latest information

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Building Product Confidence with Challenge Studies

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SUMMARY

The shelf life and stability of food products are of concern to processors, retailers, and consumers. A challenge study, in which microorganisms are inoculated into a formulation, is a useful tool for determining the risk of spoilage or growth of pathogens. The study parameters are based upon an evaluation of the food and its storage conditions. The selection of appropriate challenge organisms, duration of the study, level of inoculum, storage temperature, and packaging of samples must all be considered. The data obtained help processors develop optimal product formulations, storage, and packaging.

CHALLENGE STUDIES

Historically, physical and chemical barriers, e.g., pH, salt, and water activity (a_w), have been relied upon to inhibit the growth of pathogens and extend product shelf life. The systematic reduction of these barriers in some products has raised safety concerns among regulators and demonstrated the need for processors to conduct challenge testing.

In a challenge study, selected microorganisms are inoculated into a formulation to determine if these organisms present a potential health hazard or spoilage risk *(1, 2, 3)*.

The determination of whether to conduct a challenge study on a particular formulation must be based on an evaluation of the likelihood of pathogen growth and spoilage in a product. Challenge studies are rarely valuable for frozen foods, because most microorganisms do not grow at extremely low temperatures. Canned goods are summarily excluded because the retort process destroys harmful microorganisms.

Challenge studies are best suited for products that are stored at refrigeration or room temperatures and are vulnerable to spoilage and/or growth of pathogens.

When a processor determines that a challenge study is beneficial for a particular product, a number of factors must be considered in its design, the most important of which are (1) selection of appropriate challenge organisms, (2) duration of the study, (3) level of inoculum, (4) storage temperature, and (5) packaging of samples.

A peer-reviewed article.

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TABLE 1. Common organisms used in challenge studies for various food products

Refrigerated (RTE) foods
Listeria monocytogenes, Yersinia enterocolitica, and non-proteolytic *C. botulinum* (anaerobic conditions)

Salad dressings
Spoilage yeast and lactic acid bacteria

MAP packaged products (i.e., vegetables, meats, poultry, fish)
C. botulinum and spoilage organisms

Juice drinks
Spoilage yeast, mold, and lactic acid bacteria

Bakery items (i.e., icings, non-fruit pies) stored at room temperature
Spoilage bacteria, yeast and mold, pathogens

Sauces and salsas stored at room temperature
High acid-spoilage yeast, lactic acid bacteria, and mold;
Low acid-spoilage organisms, and pathogens

Dairy products
Spoilage bacteria, yeast and mold, pathogens

Confectionery products
Spoilage yeast and mold

Formula with new preservative
Spoilage organisms and pathogens

Selection of appropriate challenge organisms

The pH, a_w, projected holding temperature, and epidemiological history of a product are used to gauge its susceptibility to microbial growth. Ideal challenge organisms are usually those that have been isolated previously from similar foods that have been associated with microbiological problems (Table 1).

The type of packaging in which a product is stored influences the selection of challenge organisms. Packaging determines the amount of oxygen and other gases available for microbial growth in a food.

A product packaged in modified atmosphere or under vacuum may be susceptible to growth of anaerobic organisms (e.g., *Clostridium botulinum)* or microaerophilic spoilage organisms (e.g., lactic acid bacteria).

Products stored in an aerobic environment (bakery goods, fresh meats, or produce in a retail display case) are more susceptible to growth of aerobic organisms, such as *Staphylococcus aureus, Pseudomonas,* and molds.

Facultative anaerobes, such as *Salmonella* and *Escherichia coli* O157:H7, can grow with or without oxygen and must be considered for challenge studies encompassing all types of packaging.

Following the selection of appropriate challenge organisms, specific strains of the organisms are chosen for the study. Generally, it is advisable to use composite cultures of at least five strains of an organism. A composite provides more information than a single strain does about the susceptibility of the product to an organism. For instance, a syrup product may be resistant to one yeast, *Saccharomyces cerevisiae,* but susceptible to the growth of *Zygosaccharomyces rouxii.* The use of multiple strains in a composite increases the confidence that the challenge study reflects the susceptibility of the product in real-life situations. For spoilage organisms, isolates from the formulation being analyzed best represent the typical product.

Level of inoculum

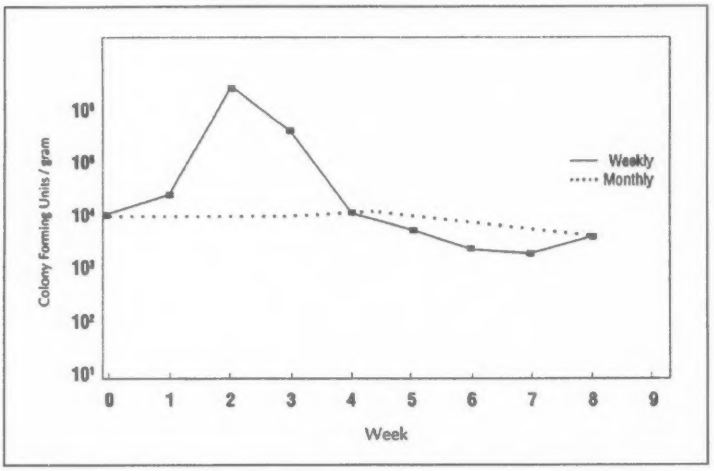
The level of challenge organisms inoculated into a product depends on whether the objective of the study is to ascertain product stability or demonstrate a reduction in challenge organisms.

A level of 10,000 colony forming units per gram (CFU/g) is usually appropriate to determine product stability *(4).* Microbes do not begin to grow immediately in most foods that are susceptible. This period of no growth is analogous to the lag phase of the microbial growth cycle. A fraction of the challenge organisms may die soon after being added to the test sample. If the sample has a low initial inoculation level and die-off occurs, one might incorrectly conclude that the product is stable. The use of 10,000 cells/g will prevent this error.

A level of 10^6 to 10^7 cells/g is often necessary to demonstrate a reduction in challenge organisms. As part of a recent FDA ruling, fresh juice producers must demonstrate a five-log reduction of hazardous microorganisms in their products.

The enumeration of organisms requires the utilization of plating methods. The detection limit of most plating media is 10 CFU/g. Therefore, to enumerate a 100,000-fold (99.999%) reduction, (from 10,000,000 to 100), 1 to 10,000,000 organisms must be inoculated into a product.

FIGURE 1. Growth comparisons of *S. aureus* in cake icing tested at monthly and weekly intervals



Duration and number of analyses

A challenge study is most accurate if the product is analyzed for the length of its expected shelf life. The number and timing of analyses is based on studies conducted with similar products.

The product should be evaluated at intervals, with a minimum of five to seven data points included in order to record significant changes in counts. The importance of appropriate testing intervals can be best illustrated in a challenge study monitoring the growth of *S. aureus* in a cake icing. If the icing is analyzed monthly (Fig. 1), the data would suggest that the product is stable against challenge with *S. aureus*. Weekly analyses, however, reveal that the product is susceptible to the growth of *S. aureus*. As a rule of thumb, if the shelf life is counted in days, analyses should be conducted daily. If the product has a longer shelf life, of weeks or months, the test frequency should be no less than once per week.

Storage conditions and packaging of samples

The storage temperature used in a challenge study should reflect the temperature at which a product is expected to be held. A product prone to temperature abuse (e.g., stored in hot warehouses or held in substandard refrigerated retail cases) should also be challenged at those temperatures. A product that is typically stored in very humid environments, such as southern regions of the United States, should be placed in high humidity chambers for the study's duration.

Test samples should be placed in the same packaging as that in which the final product will be delivered to retailers. This includes products that are packaged under vacuum or with modified atmosphere.

Challenge study sample analyses

After completion of the challenge design, the study is conducted. Cultures must be grown in appropriate media, and the product must be inoculated using aseptic technique.

The number of challenge organisms present at each time interval is determined with plate count methods. A variety of media are available for use in microbiology.

Non-selective media, such as trypticase soy agar for bacteria and potato dextrose agar for yeasts and molds, are preferable for enumeration of organisms if the product does not have background microflora. These non-selective media allow for the recovery of injured but viable cells that may be present. If there are background microflora, selective media, which are potentially more toxic to injured cells, must be utilized to differentiate challenge organisms from microorganisms already present in the product.

CHALLENGE STUDY DATA INTERPRETATION

The interpretation of collected data is based on an evaluation of trends. The number of viable organisms per gram of product is recorded at each test interval by counting colonies on plating media. These counts are evaluated on the basis of previously collected data and are typically converted into logarithmic values in order to determine the growth phase of the organism.

Typically, there is a lag phase, during which the organisms do not reproduce and counts are static. If the intrinsic and extrinsic parameters of a food product are adequate for growth, the organisms may enter the logarithmic phase, during which counts increase exponentially. An increase of one log cycle (for example from 10,000 to 100,000) is generally considered significant if the increase is noted over two or more intervals. Normal sample variation may lead to a spike in counts at one time interval, and is not necessarily significant. It is often helpful to include replicate samples at each testing interval to minimize sample-to-sample variation. If the counts of the inoculum stay the same or decrease during the study, the product is considered to be microbiologically stable against challenge with that organisms for that time period.

PREDICTIVE MODELING

Often used as an alternative or adjunct to a challenge study, predictive modeling incorporates a computer program to simulate how specific organisms will grow in a product under specific conditions (e.g., pH, a_w, temperature, air, and packaging).

Because it is impossible to replicate all the conditions found in a product, such as ingredients, additives, competing microorganisms, and texture, predictive modeling is most useful in helping to define the parameters of a challenge study rather than determining stability. The United States Department of Agriculture offers a free modeling program as part of its Web site (www.fsis.usda.gov). The program outlines the general susceptibility of a product to pathogens based on specific factors.

SUMMARY AND CONCLUSION

A well-designed challenge study assists processors in the development of formulations, packaging, and storage conditions to prevent food spoilage and safety concerns. Challenge studies are also recognized by health officials and customers as assurance that products are safe. The National Sanitation Foundation has published ANSI / NSF Standard 75 *(5)*, a protocol for challenge studies to demonstrate that baked goods can be stored at room temperature without presenting a safety risk.

Challenge studies can provide answers to critical questions. Through challenge studies, processors can extend product shelflife, prevent the release of microbiologically unstable products, and protect their brand name by avoiding costly recalls. Additionally, a challenge study provides third-party verification, an important element that more companies are looking for from suppliers.

REFERENCES

1. Walker, S. J. (ed.) 1991. Guidelines for microbiological challenge testing of reconstituted dried foods. Technical Manual No. 20, Campden Food and Drink Research Association.
2. Notermans, S., P. Veld, T. Wijtzes, and G. C. Mead. 1993. A user's guide to microbiological challenge testing for ensuring the safety and stability of food products. Food Microbiol. 10(2):145–157.
3. Notermans, S., and P. Veld. 1994. Microbiological testing for ensuring safety of food products. Int. J. Food Microbiol. 24(1/2): 33–39.
4. Curiale, M. S. 1991. Shelf-life evaluation analysis. Dairy Food Environ. Sanit. 11:364–369.
5. ANSI/NSF. 2000. ANSI/NSF 75: Standard for non-potentially hazardous foods. NSF International, Ann Arbor, MI.

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An Improved Test Method for Evaluating Barrier Teat Disinfectants

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SUMMARY

The National Mastitis Council experimental challenge procedure was adapted for the evaluation of effectiveness of acidified sodium chlorite (ASC) barrier teat disinfectants against the environmental pathogen *Streptococcus uberis*. ASC barrier disinfectants that were applied immediately after milking were tested for their ability to protect against mastitis resulting from application of a challenge inoculum one hour before milking. In a pair of 8- and 10-week studies, two of three ASC postmilking germicidal barrier teat disinfectants, activated by mandelic acid, significantly reduced new intramammary infections (59.1% and 68.4%, at 8 and 10 weeks, respectively). These reductions were equivalent to that obtained by a combined pre- and post-dipping treatment using a commercial 0.5% iodine disinfectant (58.3%) and were in contrast to the reduction obtained with a lactic acid-activated counterpart (35.0%).

A peer-reviewed article.

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INTRODUCTION

Barrier teat disinfectants have been developed for the dairy industry to provide postmilking disinfection for the control of both contagious and environmental mastitis infections. Postmilking teat dip products directed against environmental mastitis-causing organisms have a number of mechanisms of action. Most commonly, they act by physically occluding the teat end by use of a film-forming material, or they act by antimicrobial disinfection via product residue that remains on the teat surface after drying. Recent improvements in these barrier products have outpaced the development of predictive test procedures that fully measure the efficacy of a barrier disinfectant's anti-mastitis properties.

Common testing procedures for the evaluation of product efficacy against contagious mastitis include natural exposure and experimental challenge studies. The National Mastitis Council (NMC) recently developed a natural exposure protocol with specific focus on the evaluation of barrier product efficacy against environmental mastitis-causing organisms. However, although both types of studies can assess

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a teat disinfectant's efficacy in commercial use, the experimental challenge procedure allows the analysis to be conducted over a considerably shorter time in fewer animals.

In the United States, improved milking parlor practices have reduced the incidence of contagious intramammary infections (IMI) caused by *Staphylococcus aureus* and *Streptococcus agalactiae*. Focus, therefore, has shifted more to the control of IMI and the resultant clinical mastitis that arises from exposure to environmental pathogens such as *Streptococcus uberis* (*S. uberis*) *and Escherichia coli* (*E. coli*). The standard NMC experimental challenge procedure is used to compare the efficacy of teat disinfectants against contagious organisms that are applied immediately after milking *(4)*. No similar challenge test procedures are available, however, to assess the protection these disinfectants provide against mastitis acquired from environmental pathogens during the extended intermilking period.

To address this problem, the current study used a modification of the NMC experimental challenge procedure. The test teat disinfectant products were applied postmilking, as usual. Then, instead of the standard contagious organisms, the environmental pathogen *S. uberis* was used as the experimental challenge. In addition, the timing of the challenge was shifted from the commonly used immediate postmilking period to a more stringent one-hour premilking period. These modifications permitted testing under conditions that simulated and exaggerated the continual deposition of environmental pathogens on the teat surface during the intermilking period. It was felt that maximizing the bacterial levels present immediately before milking would allow, barrier films to be tested rigorously for preservation of their physical and/or antimicrobial integrity throughout the entire intermilking period.

Several barrier teat disinfectant products (prototype and commercial) were evaluated in this study. Each product contained an acidified sodium chlorite (ASC) germicide activated by mandelic acid and then combined with a soluble, skin-forming polymer *(2)*. These formulations provide two very effective functions. The initial ASC germicidal activity is created in solution when the Activator solution (mandelic acid) is combined with the Base solution (sodium chlorite) to form an unstable intermediate, chlorous acid, which then controllably degrades to form a series of both transient and stable oxychlorine antimicrobial species *(3)*. The antimicrobial activity is further enhanced by the polymer film that is deposited on and adheres to the teat for extended periods between milkings, providing a physical barrier to bacterial attachment and growth.

The efficacy of a commercially available ASC post-milking germicidal barrier teat disinfectant containing lactic acid has been well established in experimental challenge *(1, 2)* and in natural exposure studies *(2, 7)*. Recent advances in product development, however, have shown that mandelic acid is more effective for these applications than other α-hydroxy acids, including lactic acid *(1)*. Following quenching of the chlorous acid reaction (as the product dries onto the treated surface), residual mandelic acid remains in the polymer film on the teat skin and teat end surfaces, providing continued antimicrobial action during the interval between milkings. Evidence for this activity was provided by the findings of an experimental challenge study by Boddie et al. *(1)*, who showed that a mandelic acid-activated postmilking ASC barrier teat disinfectant was effective in controlling new IMI caused by *Staphylococcus aureus* (68.7%) and *Streptococcus agalactiae* (56.4%).

The objectives of the present study were (1) to compare the efficacy of two mandelic acid formulations in protecting cows from *S. uberis* IMI when artificially challenged one hour before the PM milking, and (2) to compare the efficacy of mandelic acid-ASC formulations with that of a lactic-acid predecessor, a commercially available lactic acid-activated ASC product (non-barrier), and a current 0.5% non-barrier iodophor product applied in a pre- and postmilking treatment regimen.

MATERIALS AND METHODS

Herd animals

Group A. Eighty second-lactation Holstein cows from the Cornell University herd were used. All cows were between 85 and 125 days in milk, had permanent, visible identification, and had no IMI prior to the start of the study. Absence of IMI caused by *S. uberis* was confirmed by milk sample culture from each quarter; thus all quarters were eligible for new infections during the 8-week study duration.

Group B. Eighty second-lactation Holstein cows between 65 and 130 days in milk and with characteristics similar to those in Group A were used. The study duration was 10 weeks.

Treatment groups

In both groups, each cow served as its own control. Two quarters on the same side of each cow udder were randomly allocated to a treatment group. The remaining two quarters served as a negative (untreated) control for that treatment. The groups were treated as follows:

Group A.

Treatment 1: Twenty cows were treated with an ASC postmilking germicidal, mandelic acid-activated, barrier teat disinfectant (Prototype 1A, UDDERgold Plus® – non-glycerin, Alcide Corporation, Redmond, WA).

Treatment 2: Twenty cows were treated with a commercial ASC postmilking germicidal, lactic acid-activated barrier teat disinfectant (UDDERgold®, Alcide Corporation, Redmond, WA).

Treatment 3: Twenty cows were treated with a placebo postmilking, non-activated, barrier teat disinfectant, Alcide Corporation, Redmond, WA).

Treatment 4: Twenty cows were treated with a commercial ASC postmilking germicidal, lactic acid-activated, teat disinfectant (4XLA®, Alcide Corporation, Redmond, WA).

Group B.

Treatment 1: Forty cows were treated with a commercial ASC postmilking germicidal, mandelic acid-activated, barrier teat disinfectant (UDDERgold Plus® – containing glycerin, Alcide Corporation, Redmond, WA).

Treatment 2: Forty cows were treated with a commercial 0.5% iodine pre- and post-milking germicidal teat disinfectant (Theratec,® Westfalia-Surge, Naperville, IL).

Udder preparation: Pre-milking and post-milking procedures

The same pre-milking udder preparation procedures were applied to all treatment groups except for *Treatment 2* in Group B. The udder preparation consisted of wiping all 4 teats (along their full lengths and across the teat end) with a wet single-service disposable paper towel (wet with water; no sanitizer was used). Teats were then fore-stripped twice before the milking machine was applied no more than 2 minutes after udder preparation.

For *Treatment 2* in Group B, the premilking udder preparation routine consisted of the immersion of all 4 teats to at least 50% of their length in the commercial 0.5% iodine teat disinfectant. This was followed by fore-stripping of each teat twice then wiping with a dry single-service paper towel followed by application of the milking machine.

The same postmilking procedures were applied to all treatment groups. All treated teats were immersed to at least 50% of their length in the designated teat disinfectant products no later than 30 seconds following milking machine removal. The teats were allowed to air dry prior to the cows leaving the milking area.

Milking system parameters

The milking parlor was configured as a standard double 10 herringbone with a 3 inch, low line milk collection pipe connected to DeLaval, large volume claws with 06 liners and shells. The system was analyzed by a qualified service technician 1 week prior to the study and then every 4 weeks thereafter.

Preparation of challenge culture and infection of teats

Streptococcus uberis challenge stock was obtained from the American Type Culture Collection archive, ATCC #27958. Culture broths were prepared in tryptose soy broth according to the procedures outlined in the NMC protocols *(4)*, and a standard plate count was conducted daily on the challenge suspension.

All 4 teats of each cow were artificially challenged 1 hour prior to the PM milking by aerosol spraying of the lower third of the teat with a challenge suspension containing an average of 5.2×10^6 CFU of *S. uberis* The challenge was applied to the teats 5 days per week for the duration of the study.

Collection of milk samples and milk analysis

Duplicate quarter milk samples were taken aseptically weekly (Monday AM) to determine the bacteriological status of each quarter. When the results of the duplicate samples did not agree, a third sample was taken at the Thursday AM milking. Duplicate quarter milk samples were collected during the course of the study from any cow with an identified case of clinical mastitis.

All quarter milk samples were collected aseptically by procedures recommended by the NMC. Cows that developed clinical mastitis were sampled before the administration of antibiotics.

Bacteriological analyses were conducted on all milk samples. Samples were plated on tryptose blood agar containing 5% washed calf red blood cells with 0.1% esculin added to permit the identification of *Streptococcus* species commonly associated with bovine mastitis. A 0.01 ml aliquot of each quarter milk sample was streaked on one quadrant of a tryptose blood agar plate. In addition, in samples from clinical quarters, 0.1 ml aliquots were smear-plated on one-half of a tryptose blood agar, and one-half of a MacConkey agar plate. Further analyses were not performed to identify the *S. uberis* species, which is serologically heterogeneous and responds variably to a number of biochemical tests typically used in *Streptococcus* analyses *(6)*.

Diagnosis

New IMI were diagnosed by one of the following criteria:

(a) Isolation of $\geq$ 100 CFU/ml of *S. uberis* from 1 sample from a quarter with clinical mastitis.

(b) Isolation of $\geq$ 500 CFU/ml of *S. uberis* from 2 consecutive quarter milk samples.

(c) Isolation of $\geq$ 400 CFU/ml of *S. uberis* from 3 consecutive quarter milk samples.

(d) Isolation of $\geq$ 100 CFU/ml of *S. uberis* from a quarter milk sample with a somatic cell count in excess of 6 $\log_{10}$ cells/ml.

TABLE 1. Group A: Efficacy of acidified sodium chlorite post-milking germicidal barrier and non-barrier teat dips and a placebo barrier teat dip in preventing *Streptococcus uberis* infections

Treatment	Quarters (untreated/treated)	Total new intramammary infections		Reduction (%)
		Untreated control	Treatment	
Mandelic acid activated barrier teat dip[1], Prototype 1A	40/40	19/40 (47.5%)[5]	6/40 (15%)[a]	68.4
Lactic acid activated barrier teat dip[2]	40/40	20/40 (50%)	13/40 (32.5%)	35.0
Placebo, non-activated barrier teat dip[3]	40/40	22/40 (55%)	14/40 (35%)	36.3
Lactic acid activated non-barrier teat dip[4]	40/40	19/40 (47.5%)	14/40 (35%)	26.3

[1] UDDERgold Plus®, non-glycerin formulation, Alcide Corporation, Redmond, WA.

[2] UDDERgold®, Alcide Corporation, Redmond, WA.

[3] Placebo, Alcide Corporation, Redmond, WA.

[4] 4XLA®, Alcide Corporation, Redmond, WA.

[5] Numbers in parentheses show the percentage rate of new infection in untreated and treated quarters.

[a] Statistically different from control, $P < 0.05$.

Data analysis

Infection data were analyzed based on the percentage of eligible quarters infected with *S. uberis* mastitis pathogen. The following statistic was applied *(4)*:

$t = \{[(x_1 / n_1) - (x_2 / n_2)] / [(x_1 + x_2)/(n_1 n_2)]\}^{0.5}$ where:

t = an approximated student statistic.

x_1 = number of new IMI in untreated quarters.

x_2 = number of new IMI in treated quarters.

n_1 = [number of untreated quarters] [time unit].

n_2 = [number of treated quarters] [time unit].

The denominators, n_1 and n_2, were expressed as the summation of quarter days.

The percentage reduction in new infection rates in each of the treatment groups, compared with that in the untreated group, was expressed as:

$100\ [(x_1 / n_1) - (x_2 / n_2)] / (x_1 / n_1)]$

RESULTS

The efficacy results by treatment for the 8-week study (Group A) are presented in Table 1. As can be seen, the average new IMI rate for *S. uberis* in the untreated quarters was 50.0% (range 47.5% to 55%). Analysis of the treatment effect indicates that new IMI from *S. uberis* were reduced significantly (68.4%, $P < 0.05$) by the mandelic acid-activated ASC germicidal barrier teat disinfectant. None of the other treatments exhibited significant reductions in new *S. uberis* IMI (32.5%, 35%, and 35%, respectively) compared to their untreated controls.

The efficacy results by treatment for the 10-week study (Group B) are presented in Table 2. Untreated control quarter new IMI due to *S. uberis* averaged 57.5% for the period of the study (range 55% to 60%). In comparison with their respective control groups, significant reductions in new *S. uberis* IMI were seen in the mandelic

TABLE 2. Group B: Efficacy of acidified sodium chlorite post-milking germicidal barrier teat dip and a pre- and post-milking iodine teat dip program in preventing *Streptococcus uberis* infections

Treatment	Quarters (untreated/treated)	Total new intramammary infections		Reduction (%)
		Untreated control	Treatment	
Mandelic acid activated barrier teat dip[1],	40/40	22/40 (55%)[2]	9/40 (22.5%)[a]	59.1
Iodine 0.5% (pre- and post-dip)[3]	40/40	20/40 (60%)	10/40 (25%)[a]	58.3

[1]UDDERgold Plus®, Alcide Corporation, Redmond, WA.

[2]Numbers in parentheses show the percentage rate of new infection in untreated and treated quarters.

[3]Theratec®, Westfalia-Surge, Naperville, IL.

[a]Statistically different from control, $P < 0.05$.

acid-activated ASC germicidal barrier teat disinfectant (59.1%, $P < 0.05$) and the 0.5% iodine pre- and postmilking teat disinfectant groups (58.3%, $P < 0.05$).

The results of a cross-trial analysis of Groups A and B are presented in Table 3. As shown, treatment with mandelic acid-activated ASC barrier germicidal teat disinfectants and the iodine pre- and postmilking treatment program were equivalent in reducing new IMI caused by *S. uberis*.

DISCUSSION

The results indicate that adaptation of the NMC experimental challenge procedure for comparing the effectiveness of ASC barrier teat disinfectants against the environmental pathogen *S. uberis* results in a procedure that can yield meaningful information. On average, when untreated quarters were challenged one hour prior to milking, half of them developed new IMI. Prior studies have used the NMC experimental challenge procedure to evaluate effectiveness of ASC barrier teat disinfectants against the contagious organisms *Staphylococcus aureus* and *Streptococcus agalactiae (1, 2)*. New IMI rates in control groups in these studies have typically ranged from 5.9% to 34.4% (*Staphylococcus aureus*) and 3.4% to 17.7% (*Streptococcus agalactiae*).

The modified procedure used in this study substantially increases the rate of new IMI in untreated quarters so that fewer cows (test quarters) per treatment group are required for statistically significant treatment differences to be detected. The infection rate is higher than was found in another, similar modification of the experimental challenge procedure for evaluating an ASC germicidal pre-milking teat disinfectant (data not shown). In that evaluation, teats were immersed in a broth of the challenge organism rather than sprayed with an aerosol. The higher rate of new IMI in the present study suggests that aerosol application of organisms may provide a more effective challenge than teat immersion.

The efficacy of a commercially available ASC barrier teat disinfectant product (lactic acid-activated) against coliform environmental pathogens such as *Escherichia coli* was reported earlier *(8)*. The results reported here, however, indicate that there is little germicidal activity present in the polymer film of this formulation. Therefore, the reported effectiveness of the lactic acid-activated product against *E. coli* is probably largely attributable to the physical occlusion provided by the barrier film deposited on the teat skin and over the teat end following milking. Application of the barrier formulation immediately post-milking ensures that the physical occlusion of the teat end is being maintained over the critical 3- to 4-hour period during which the teat canal may remain partially or fully patent.

The data reported in this study indicate that addition of mandelic acid, a residual germicide of higher potency, than that of lactic acid-activated products to ASC barrier teat disinfectant formulations

TABLE 3. Efficacy of acidified sodium chlorite post-milking germicidal barrier teat dips, a placebo barrier teat dip, and a pre- and post-milking iodine teat dip program in preventing *Streptococcus uberis* infections: a cross-trial analysis

Treatment	% Reduction of new intramammary infections
Lactic acid activated barrier teat dip[1]	35.0[a]
Mandelic acid activated barrier teat dip[2], Prototype 1A	68.4[b]
Mandelic acid activated barrier teat dip[3]	59.0[b]
Iodine 0.5% (pre- and post-dip)[4]	58.3[b]

[1] UDDERgold®, Alcide Corporation, Redmond, WA.

[2] UDDERgold Plus®, non-glycerin formulation, Alcide Corporation, Redmond, WA.

[3] UDDERgold Plus®, Alcide Corporation, Redmond, WA.

[4] Theratec®, Westfalia-Surge, Naperville, IL.

[a, b] Different superscripts within column indicate values differ significantly, $P < 0.05$.

extends protection against challenges of the environmental pathogen *S. uberis* during the inter-milking period. This protection extends up to the pre-milking preparation period and augments the physical protection of the polymer barrier.

Antimicrobial activity does not appear to be reduced by the addition of glycerin to the formulations tested (Prototype 1A versus UDDERgold Plus®). This lack of effect on germicidal performance compares favorably with the adverse impact of glycerin on germicidal activity of some iodine and chlorhexidine teat disinfectants *(5)*.

Finally, as shown by the cross-trial analysis of the data, the protection afforded by a single post-milking application of the mandelic acid ASC formulations against *S. uberis* is equivalent to that provided by a 0.5% iodine disinfectant applied both pre- and post-milking.

These data show that replacement of lactic acid with mandelic acid and the addition of glycerin in the ASC germicidal barrier teat disinfectant system have created a new class of teat disinfectant product that can control environmental mastitis pathogens when used in a single application after milking.

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REFERENCES

1. Boddie, R. L., S. C. Nickerson, and G. K. Kemp. 1994. Efficacy of two barrier teat dips containing chlorous acid germicides against experimental challenge with *Staphylococcus aureus* and *Streptococcus agalactiae*. J. Dairy Sci. 77:3192–3197.
2. Drechsler, P. A., E. E. Wildman, and J. W. Pankey. 1990. Evaluation of a chlorous acid-chlorine dioxide teat dip under experimental and natural exposure conditions. J. Dairy Sci. 73:2121–2128.
3. Gordon, G., G. Kieffer, and D. Rosenblatt. 1972. The chemistry of chlorine dioxide, p. 201-286. *In* S. Lippard (ed.), Progress in Inorganic Chemistry, vol. 15, Wiley Interscience, NY.
4. Hogan, J. S., D. M. Galton, R. J. Harmon, S. C. Nickerson, S. P. Oliver, and J. W. Pankey. 1990. Protocols for evaluating efficacy of post-milking teat dips. J. Dairy Sci. 73:2580–2585.
5. Murdough, P. A., and J. W. Pankey. 1993. Evaluation of 57 teat sanitizers using excised cow teats. J. Dairy Sci. 76:2033–2038, errata 76:4019.
6. National Mastitis Council. 1990. Streptococci and enterococci, p. 7-10. *In* National Mastitis Council Research Committee (eds.), Microbiological Procedures for the Diagnosis of Bovine Udder Infection, 3rd Edition, National Mastitis Council, Virginia.
7. Oliver, S. P., S. H. King, P. M. Torre, E. P. Shull, H. H. Dowlen, M. J. Lewis, and L. M. Sordillo. 1989. Prevention of bovine mastitis by a post-milking teat disinfectant containing chlorous acid and chlorine dioxide in a soluble polymer gel. J. Dairy Sci. 72:3091–3097.
8. Poutrel, B., F. Serieys, and M. Ducelliez. 1990. Efficacy of a germicidal post milking barrier type teat dip in preventing intram-ammary infections. Vet. Rec. 77:638–640.

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Reprinted from a Press Release *Food and Agriculture Organization of the United Nations – 1/03/01*

FAO: Countries Around the World Should Be Concerned About 'Mad Cow Disease' and Should Take Action to Reduce and Prevent Risks

The UN Food and Agriculture Organization (FAO) has urged countries around the world, not just those in Western Europe, to be concerned about the risk of bovine spongiform encephalopathy (BSE) and its human form, the new variant Creutzfeldt-Jakob disease (nvCJD). In a statement issued in Rome, FAO called for action to protect the human population, as well as the livestock, feed and meat industries.

"There is an increasingly grave situation developing in the European Union, with BSE being identified in cattle in several member states of the EU which have, until recently, been regarded as free from the disease," FAO said. "Confirmed and suspected cases of nvCJD are occurring in people outside the UK, in various member states. More research needs to be conducted into the nature of the agent and its modes of transmission. Much remains unknown about the disease and the infective agent. There is currently no method of diagnosis at early stages of infection and no cure for the disease, neither in animals nor in humans."

In a statement issued in Rome, FAO called for action to protect the human population, as well as livestock, feed and meat industries.

All countries which have imported cattle or meat and bone meal (MBM) from Western Europe, especially the UK, during and since the 1980s, can be considered at risk from the disease, according to the UN agency. Several countries have imported large quantities of MBM in the recent past.

FAO said it supports the EU's action and considers "that there is an urgent need to refine the risk assessment and to extend it to other countries and regions. Countries at risk should implement effective surveillance for BSE in cattle and controls on the animal feed and meat industries. At present, this means: laboratory testing of samples from slaughtered cattle, and correct disposal of fallen stock and improved processing of offals and by-products."

Within countries, FAO recommended applying the so-called Hazard Analysis Critical Control Point system (HACCP) which aims at identifying potential problems and taking corrective measures throughout the food chain. Some of the issues include the production of animal feed, the raw materials used, cross-contamination in the feed mill, labelling of manufactured feeds, the feed transport system, as well as monitoring imported live animals, slaughtering methods, the rendering industry and the disposal of waste materials.

"Strict controls have been implemented in the United Kingdom and are now being implemented in the rest of the EU," FAO said. "Countries outside the EU should

adopt appropriate measures to protect their herds and to ensure the safety of meat and meat products. Legislation to control the industry and its effective implementation is required, including capacity building and the training of operatives and government officials."

FAO advised countries to adopt a precautionary approach. As an immediate measure, countries which have imported animals and MBM from BSE-infected trading partners should consider a precautionary ban on the feeding of MBM to ruminants (cattle, sheep, goats) or, to reduce the risk of infection even further, to all animals.

Attention should be paid to slaughtering procedures and to the processing and use of offal and by-product parts, FAO said. The rendering industry should be scrutinized and appropriate procedures adopted everywhere.

FAO, together with the World Health Organization (WHO) and the Organization Internationale des Epizooties (OIE), will hold an expert consultation in the near future to draw up advice for countries, particularly developing countries, to protect their people from nvCJD, their livestock from BSE, and their industries from trade restrictions and their repercussions.

The FAO/WHO Codex Alimentarius is currently finalizing work on a 'Code of Practice for Good Animal Feeding' to ensure that animal products do not create risks to consumers.

FAO, together with WHO and OIE, will continue to inform countries of developments and of scientific and technical advances relating to this problem.

The latest information can be obtained from the Web site: www.fao.org/livestock/AGAP/FRG/Feedsafety/fs2.htm.

For more information please contact: Erwin Northoff, Media Officer, Phone: 39.06.5705; 3105.2232; E-mail: erwin.northoff@fao.org.

LOOK WHAT'S NEW

IAFP Job Fair

at the 88th Annual Meeting

See future issues of *DFES* for additional information.

International Association for Food Protection

HISTORY

1911-2000

Executive Board in one of many sessions held during the Annual Meeting. From left to right: H. A. Barnum, H. H. Wilkowske, J. D. Faulkner, Paul Corash, H. S. Adams, and I. E. Parkin. Reprinted from the *Journal of Milk and Food Technology,* Volume 19, No. 1, 1956.

THE '50s

The 1950 Annual Meeting featured a new dimension, the motion picture, which provided technical information as well as entertainment. Featured this year were breakfasts attended by various committees, boards and groups; these gatherings facilitated the exchange of information while they enhanced friendships. The experiment of running the Meeting for four days, including Sunday, seemed to work very well. Presentations on the topic of Development of the Milk and Food Sanitation Program of the United States Public Health Service were published in three issues of the 1951 Journal. These articles reported that before 1908, five hundred milkborne outbreaks had been reported in the literature in the United States. Beginning in 1923, the Public Health Service compiled annual summaries of milkborne outbreaks. These compilations indicated that reported milkborne outbreaks of disease in the United States had declined from between 40 and 60 per year in the 1920s to about 20 in the postwar years; practically all of those were due to raw milk supplies and occurred in small cities and towns. It had been shown that the danger of contracting disease is about 50 times greater from raw milk than from pasteurized milk.

By the time of the 39th Annual Meeting in 1952, Membership exceeded 3,500, with every state and 56 countries represented. There were nineteen Affiliates, representing 23 states, and Journal circulation averaged more than 4,500 copies per issue. An Association office had been established, with a full-time Executive Secretary and clerical help. H. L. "Red" Thomasson was appointed Executive Secretary and Managing Editor while he completed his year as President

IAFP History...

Beginning with the January 2001 issue of *DFES* we are printing sections from the book, the "International Association for Food Protection History 1911-2000." See page 226 to obtain your copy of this informative book.

of the Association. Monthly publication of the Journal was finally an achievable objective.

At long last, the Association acted to recognize those Members who had been outstanding contributors over the years through an awards program. Awards were presented to recognize a Sanitarian for their service to the profession and a Citation Award was given to honor a Member's service to the Association. The 39th Annual Meeting set a record for registration, 486, including 53 women.

Revisions to the Constitution and Bylaws were passed at the 1953 Annual Meeting. It was decided that the Officers of the Association would be President, President-Elect, First Vice-President, Second Vice-President, and Secretary-Treasurer, who shall hold these offices for one year or until their successors are elected or appointed.

At the termination of each Annual Meeting, the President-Elect, First Vice-President, and Second Vice-President would automatically succeed to the offices of President, President-Elect, and First Vice-President, respectively; the Second Vice-President and Secretary-Treasurer would be elected by majority ballot at the Meeting. The term of office was changed, from a calendar year to the period from the last day of the Annual Meeting to the last day of the following year's Annual Meeting.

It was reported that an analysis of the cost of the first six monthly issues of the 1954 *Journal of Milk and Food Technology*, as compared with the cost of the previous, bi-monthly publication, showed that the more frequent publication was possible without any additional cost in subscription rates to the Members.

Papers on a wide range of topics, from silicones to rabies and from High Temperature Short Time (HTST) pasteurization to antibiotics, were presented at the 1955 Annual Meeting. More than 300 participants agreed that it was one of the most interesting Meetings ever held, from both a scientific and a professional prospective. Cutting-edge topics included "Antibiotics in Milk," "Industry's Program on Crabmeat Plant Sanitation" (by a speaker from the National Fisheries Institute), and "New High Temperature Processes," and many panel discussions were also offered.

By 1956, the organization had 4,200 Members and 28 Affiliates. The question was raised as to whether a base of milk and food sanitation activities alone was large enough to survive. A

Harold Wainess displays a bulk milk dispensing machine. Reprinted from the *Journal of Milk and Food Technology*, Volume 21, No. 4, 1958.

number of factors had prompted this inquiry: "We see around us other groups organizing with interests which, in several respects, are similar to ours. In the Midwest we learn of an organization formed to solicit the membership of dairy plant field men and build them into a national organization. A large group of men in this work are devoted Members of this Association. In the Southwest, an organization is being formed and promoted which is directed towards the 'registered' professional sanitarian and aims to create a society by that name. In a substantial number of states... the National Association of Sanitarians is active in soliciting Membership from men engaged in the field of sanitation." With 4,200 Members, was the Association close to the end of the line? There were more than 9,000 men and women in public health sanitation work in the United States and perhaps half again as many in other phases of regulatory work, and yet the combined membership of the two leading sanitarian organizations was only about 6,000. In reality, the question was whether we, the leading Association, should remain so specialized or whether the scope and objectives needed to be enlarged to encompass areas beyond milk and food sanitation.

The following year in 1957, it became apparent from the discussions at the Affiliate Council meeting that the question of a name change for the Association, to "International Association of Sanitarians" would have to be faced eventually. This was made clear by the strong feelings of some Members that the expansion of the Association's activities into areas of

One of the sessions at the 46th Annual Meeting. Reprinted from the *Journal of Milk and Food Technology*, Volume 22, No. 10, 1959.

sanitation other than milk and food was essential to the best interests and further growth and development of the Association. Consequently, a change to a name implying broader interest and encompassing all areas of sanitation was felt by many to be necessary. Opinion was not unanimous in this regard; others expressed viewpoints quite the contrary.

Questions also arose regarding the method of electing officers. Many Members had become dissatisfied with the custom of holding elections during the Annual Meeting. Consequently, a committee was appointed to study how the Affiliates were handling elections. It was found that only two Affiliates utilized mail ballots. As a result, although the committee recognized that use of mail ballots would be more democratic, the many logistic problems appeared to outweigh the advantages, and mail ballot elections were voted down.

A new award was established at the 1957 Annual Meeting to recognize long-time Members who had dedicated themselves to the ideals of the Association. The Honorary Life Membership Award included a lifetime Membership in IAMFS to honor such distinguished individuals.

One important outcome of the 1958 Annual Meeting was the decision that the Affiliate Council could elect a chairperson from its ranks, instead of the chairperson automatically being the immediate Past President of the Association, as had been the practice. A discussion ensued, once again, on whether the Association should be renamed to reflect the expectation that it would exert greater leadership in areas of sanitation other than milk and food. Reasons cited included the growing number of other organizations, local and national in scope, having objectives overlapping those of the Association. The matter was referred to a newly appointed committee that was to study the Association's activities relative to any name change at that time. The Affiliate Council had also taken under consideration a nationwide system of registration of sanitarians, a subject that the Committee on Education and Professional Development was examining closely.

The amendments to the Constitution and Bylaws that were passed at the 1958 Annual Meeting were approved by the Membership through a mail vote. This action is worthy of note; apparently a mail vote was acceptable for just about everything except the election of officers. Journal circulation had climbed above 5,400 copies per issue. Considerable time was spent discussing an increase in dues; various costs were at issue, including additional help in the Association office, postage, and printing. It was noted that improved Journal coverage of Affiliate activities would keep the Membership informed and do much to maintain a closer working relationship between the Association and Affiliates.

In the 1959 Presidential address, it was pointed out that the Association was well known in the world of sanitarians and that it was continually being asked to participate in the meetings of many organizations related to sanitation. Of particular interest was the honor bestowed upon the Association by appointment of IAMFS to the Joint Expert Committee on Milk Hygiene of the World Health Organization and the Food and Agriculture Organization of the United Nations (FAOUN). It was noted that IAMFS was working with FAOUN in the distribution of surplus journals to developing countries.

THE '60s

At the 47th Annual Meeting in Chicago in 1960, Dr. Samuel Andelman, Chicago Health Commissioner, in his welcoming address stressed the expanding role of sanitarians in light of the ever-enlarging scope of their activities. To meet these greater responsibilities, attainment of greater competency and the maintenance of high standards of performance were essential. The Association's President spoke at length on ways and means of strengthening the Association and referred to the important role of the *Journal of Milk and Food Technology* in this regard. He indicated that while the Association would

continue to emphasize milk and food sanitation, it would, in addition, devote increasing attention to areas of general environmental sanitation. This change was seen as the key to the future of the organization, nationally and locally. An increasing proportion of new members of the Affiliates were interested in general sanitation activities. As a result, more papers and information on general sanitation and administrative practices were to be included, not only in the Annual Meeting program, but also in the Journal. Future issues of the Journal were also to include papers and other materials on techniques and practices of interest to a greater number of members at the local level.

The Executive Board had concluded that the Association should employ a full-time person to help with editorial duties. Although it had taken some time to determine whether a dues increase would be adequate to cover the salary for such a person, the Board eventually decided that the dues increase would provide adequate revenue.

Another matter extremely important to the Association was the proposed Model Registration Act that had been developed by the Sanitarians' Joint Council that provided for the licensing and registration of all sanitarians. Its effect would be to establish a consistent professional standard throughout the entire sanitation field. In the fifty years of its existence, the Association shared in bringing about much of the progress toward firm establishment of sanitation as a science and a profession. Membership included specialists in virtually every area throughout the broad field of environmental sanitation. As the President of the Association pointed out, Members in 1960 were very different from the 35 founding Members of 1911, who were dairy and milk inspectors: "Today, we sanitarians must be equipped to deal with problems extending throughout the entire range of environmental health. We must solve problems of waste disposal, insect and rodent control, air pollution, housing, radiological poisoning and many others. Additionally, with more Americans eating out more often than ever before, the food service industry has become an area of responsibility such as would have been impossible for our founding Members to imagine. Recently the packaging of prepared foods of the 'heat and eat' variety has developed as a rapidly expanding industry that poses new sanitation problems for you to solve."

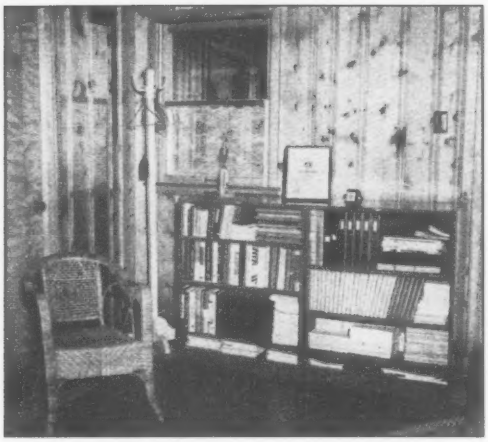
Also at the Annual Meeting in 1960 through the efforts of the Executive Board, the Farm Methods Committee of IAMFS, and members of various dairy groups, a National Mastitis Action Committee was organized. The primary objective of the Committee was to correlate all research and educational activities pertaining to the control of mastitis. As a result of these efforts, the National Mastitis Council, Inc. was organized on a permanent basis by the time of the 1961 Meeting.

Despite having little time for advance planning and preparation, because of the shift of the Golden Anniversary meeting of IAMFS from Jekyll Island, Georgia, to Des Moines, Iowa, the Iowa Association of Milk Sanitarians sponsored a well organized Annual Meeting in 1961. The Association President spoke to the fact that for several years the feeling had been growing that the Association must develop a more suitable method of electing officers, because only a fraction of the Members are present at the Annual Meeting to vote. During the Business Meeting, the Membership passed a resolution directing the Executive Board to study the problem and attempt to provide a more equitable procedure for electing officers.

Also in 1961, it was announced that problems related to the hiring of an editorial assistant had been resolved at last and "we are proceeding to hire an Assistant Executive Secretary within the next ninety days." The new staff position would also serve as editorial assistant.

The President emphasized that the Association needed to change the Constitution and Bylaws to eliminate the offices of 2nd Vice President and the senior Past President, so as to provide the Board more flexibility and a continuous flow of new blood in the management of the Association. "The role of the sanitarian is

The Registration Committee works at the 1961 Annual Meeting. Reprinted from the *Journal of Milk and Food Technology*, Volume 24, No. 8, 1961.



IAMFS Library. Reprinted from the *Journal of Milk and Food Technology*, Volume 24, No. 8, 1961.

changing rapidly. The Executive Secretary reported last year the number of sanitarians engaged in various phases of public health work... we are not just milk and food sanitarians but a large number of our members are engaged in general sanitation." In short, the name of the Association should be changed to include the general sanitarian as well as those engaged in milk and food sanitation. Definite trends were taking place in sanitarian organizations in the United States. Sanitarians were being asked to join different organizations, and they often questioned how (or whether) they were really contributing to their profession. They had to decide which organizations to join, how much they were willing to pay in dues, and which organization would serve them best. These decisions were becoming more important, largely because registration was becoming required under more and more state laws. The President stated he was sure that his view on the need for a name change was an unpopular position in some sections of the Association, but "I am more concerned with the future interests of sanitarians than running a popularity contest."

"These are challenging days for the health profession — the responsibilities are great, but the rewards are even greater" was the statement of Dr. Leroy E. Burney, Vice-President of Health Sciences of Temple University, in his keynote address at the Annual Meeting in 1962. At the business meeting, significant action was taken: By majority vote, the secretary was authorized to submit to the Membership at large a mail ballot whereby they could approve or disapprove a proposed Constitutional amendment advocating that the name of the Association be changed to the International Association of Milk, Food and Environmental Sanitarians. The Association President urged the Membership to return the ballots promptly. Concerning the election of officers, it was quite apparent from informal discussions that there was growing dissatisfaction with the election procedure. The most common complaint heard was that a system that allowed less than 10% of the Membership (300 of 4,200) to elect our leadership can hardly be considered fair and equitable. More and more sentiment had developed in favor of a mail ballot for election of officers, with publication in the Journal beforehand of the background and qualifications of nominees.

The ninth seminar of the National Association of Frozen Food Packers was held in conjunction with the 1962 Annual Meeting for the purpose of acquainting industrial, educational and governmental personnel with some of the latest information about frozen foods.

In May 1963, the Secretary-Treasurer announced that the proposed constitutional amendment to change the name of the Association to include the term "environmental" had been passed by the required two-thirds majority vote of the Membership. The name change was implemented in the publication of the June 1963 *Journal of Milk and Food Technology*, although the legal filing of the name change did not take place until 1966.

In organizing the program for the 50th Annual Meeting, held in Toronto in 1963, the committee provided excellent balance between topics in the areas of milk and food sanitation and topics in the broader aspects of environmental sanitation. The Board of Directors

Speakers at the 1968 Annual Meeting of the Wisconsin Association of Milk and Food Sanitarians and the Wisconsin Dairy Plant Fieldmen. Reprinted from *Journal of Milk and Food Technology*, January 1969, Vol. 32, No. 1.

1967-68 Executive Board (bottom row, left to right), Sam Noles, Al Myhr, Paul R. Elliker, Karl K. Jones, Milton Held, "Red" Thomasson, Fred Uetz, and Dick B. Whitehead. Reprinted from the *Journal of Milk and Food Technology*, Volume 9, No. 9, 1967.

tackled numerous Association problems at this Meeting. Significant among their accomplishments was the decision to support the proposal of the Joint Sanitarians Council for implementation of a plan for certification of sanitarians.

Also at the 1963 Meeting, the Membership voted to amend the Constitution and Bylaws to provide for election of officers by mail ballot rather than at the Annual Meeting. Names of nominees for office would be published in the Journal along with biographical sketches prior to balloting.

In his Address at the 51st Annual Meeting, the President emphasized the progress made by the Sanitarian Joint Council toward implementing the plan for certification of sanitarians, a plan that had been endorsed by the Association a year before. To help keep IAMFES Members more fully informed, additional personnel were to be added to the editorial staff of the Journal, primarily to increase the Journal's coverage of Association activities and to increase the number of papers in the area of environmental sanitation. He emphasized that the Journal had attained highly respected status as a professional periodical, with its greatest strength in the area of dairy and food sanitation and technology. He further emphasized that this high status must be maintained, referring to the Journal as "the principal tangible evidence of the professional nature of the work of sanitarians."

The President in 1965 discussed the expansion of the *Journal of Milk and Food Technology*, as initiated by the Executive Board a year before. The expansion, which had been predicated upon the hiring of a part-time editor for the specific purpose of "expanding the scope of the Journal to include more material of a general and practical nature," was intended to meet the demands of Members interested in articles covering general sanitation and public health. It was pointed out that recent issues of the Journal reflected the efforts of the staff in this direction. While the high prestige of the publication in the fields of research and technical development was being preserved, professional information was also being made available to Members who needed practical "how-to" material. The President emphasized the need for an increase in Membership dues to carry on current work and to initiate and expand useful programs in the future. It was planned that a proposal for a dues increase would be presented at meetings of Affiliates during the coming year. It is worth noting that the 1965 Association Officers were the first to be elected by mail ballot.

When the 53rd Annual Meeting was held in 1966, prospects for a well-attended meeting were anything but good, with an airline strike still in effect as arrangements were being finalized. As it turned out, there was little need for concern; registration soared to 459, which was the second highest in the history of the Association (1952's Meeting had more). The President minced no words in informing the Membership of the need to provide adequate funds for proper financing of the Association's activities. Apparently, his message was heard "loud and clear" for the Membership voted a dues increase to $8 and $10 for Affiliate and direct Membership, respectively.

One of the speakers at that Annual Meeting provided insight into the solution of problems involving sterilization of interplanetary space vehicles and other hardware. A new committee, Food Protection, was appointed, having among its objectives the coordination of efforts of several other committees with activities in the general area of food protection.

The principal item on the Executive Board agenda at the Annual Meeting, of 1967 was a thorough discussion of progress to date and future planning relative to the merger of the activities of IAMFES and the National Association of Sanitarians (NAS), the two largest Sanitarians Associations. It had become evident that the aims and objectives of the two organizations overlapped considerably. The feeling had grown among both memberships that combining the activities of the two Associations

might better serve the interests of sanitarians. At the opening session, the President devoted a major portion of his address to outlining and discussing events relative to a possible IAMFES-NAS merger, including a rather detailed discussion of a proposed draft of a Constitution and Bylaws for a new organization.

At the 55th Annual Meeting, held in 1968, an item of major importance for consideration was the reaction of NAS to the seventh draft of the Constitution and Bylaws prepared by the ad hoc committees of the IAMFES and NAS as a basis for amalgamating the two organizations. Apparently not pleased with the proposed organization, NAS was nevertheless amiable to continuing to work together. In his address, the President of IAMFES reported on developments during the previous year regarding the hoped-for emergence of a new and unified organization. His less-than-optimistic report on the state of negotiations at that time delayed efforts to develop guidelines for consolidating the two counterpart organizations at the state and regional levels.

At the 1968 Annual Meeting, the Journal Management Committee recommended institution of a page charge for publication of research papers in the Journal; the Executive Board adopted this recommendation. Elmer Marth, Editor of the *Journal of Milk and Food Technology* advised that the Journal Management Committee would like to devote a page or two each month to activities of Affiliates but that doing so would require more organized and regular reporting of such activities.

In the Presidential Address at the 1969 Annual Meeting, the main topic was the status of negotiations concerning the joining together of the National Association of Sanitarians (NAS) and the International Association of Milk, Food and Environmental Sanitarians to yield one new organization. Efforts had come to a standstill at the 1968 Meeting, as a result of the action of an Executive Committee of NAS, which changed the proposed Constitution and Bylaws back to the original document under which that organization was operating. After the Executive Secretary met with the IAMFES Board and requested that they keep an "open-door" policy toward blending the two into one, an ad hoc committee was appointed to work with a similar committee of NAS if and when they proposed a Constitution and Bylaws.

IAMFES experienced its largest income to date during the 1968-1969 year. Implementation of a page charge had facilitated prompt publication of research papers and had made it possible to add extra pages to the Journal. The Journal Management Committee recommended the approval of student subscriptions, which the Executive Board voted to make available to full-time students at a rate of $4 per year.

THE '70s

The 1971 IAMFES Annual Meeting in San Diego, California, held along with the summer meeting of the National Mastitis Council attracted more than 300 Members and guests. Of the papers presented, six pertained to the National Center for Toxicological Research, eight were presented in the Milk Sanitation section, four in the Food Industry Sanitation section, and eight in the Food and Environmental Sanitation section. Membership dues were raised to $14 effective in 1972.

During 1973, Members of both IAMFES and the National Environmental Health Association (NEHA) were polled to determine their opinion on consolidating the two organizations. Both memberships voted to continue discussion, with a small percentage of Members participating in the vote.

At the 1973 Annual Meeting, a new combined award was issued. The Educator-Industry Award was presented to a Member in recognition of their service to the ideals of the Association and for service to education or industry.

Canned cheese. Cured in 8-oz. aluminum-foil wrapped packages in container with gas-venting valve. Reprinted from the *Journal of Milk and Food Technology*, Volume 34, No. 7, 1971.

It was announced that Earl Wright would fulfill the position of Executive Secretary and Managing Editor beginning January 1, 1974 replacing Red Thomasson. When Red took over IAMFES in 1952, the Association had been near bankruptcy. It was largely through his efforts that the Association continued operating.

Late in 1973, the office was moved to Ames, Iowa from Shelbyville, Indiana, where it had been located in a small, remodeled poultry house on Red's farm. Earl wore two hats, one as President of IAMFES and the other as its Executive Secretary. During 1974, the Association saw 350 to 400 new direct or Affiliate members join the organization, due to efforts of the committee on Membership, as well as efforts of Affiliate organizations.

IAMFES continued to move forward in 1975 despite a general economic recession. One word that dominated that year was "service." Service to the affiliates and their membership, service to the public, service to the food industry, and service to the scientific community were all emphasized by the organization. Membership continued to grow, with an additional 182 Members joining, but committee activity was inconsistent, mostly because of restrictions in travel funds. Some changes were made in the committee structure to help alleviate those problems.

The Association continued to cooperate with NEHA and held a joint meeting of officers in Washington, D.C. in 1975. The purpose of the Meeting was to explore common ground for both organizations, determine potential problems, and to suggest steps necessary for unification. A timetable approved by the joint executive boards represented a sincere attempt to best serve both the public and members of the two organizations. In the 1975 Presidential address, it was stated that this was an agreed-upon goal of both organizations. The Association appointed two representatives to attend the next NEHA meeting, to be held in Snowmass, Colorado, to work on a plan to consolidate the two associations' journals.

At the 1975 Annual Meeting, the chairperson of the Journal Management Committee recommended that an assistant editor be appointed to work on the Journal's non-technical content. The Management committee also recommended that the name of *Journal of Milk and Food Technology* be changed to *Journal of Food Protection*.

The Committee on Communicable Diseases Affecting Man announced publication of the 3rd edition of *Procedure for the Investigation of Foodborne Diseases*. Approximately 90,000 copies of the first and second editions had been sold. The Affiliate Council meeting in 1975 was the best attended, liveliest, and most productive Affiliate Council meeting in the recent past. Affiliate Associations in the United States were becoming a vital part of the Association. The year ended "in the black," overcoming the deficit incurred in 1973 and 1974.

In 1976, an Assistant Executive Secretary who was also to serve as Assistant Editor of the Journal was hired. This resulted in better liaison and communication with affiliates, educational institutions, sanitarians, and others. Total Journal distribution grew to over 3,400 Members and subscribers, and the Journal increased pages of scientific and research papers. The possibility of publishing a journal of practical applications was being discussed.

In 1977, thanks to the dedicated service of Elmer Marth, the Scientific Editor, the Journal Management Committee, and many others, the Journal passed an important milestone in becoming the *Journal of Food Protection*. The Foundation Fund was introduced during the same year. The Executive Board decided that corporations or organizations supporting the Sustaining Membership program should receive adequate recognition. It was agreed their names would appear monthly in the Association Journal. This Foundation Fund succeeded the Sustaining Membership Fund.

Plans were made at the 1977 Meeting for IAMFES and NEHA to hold a joint Annual Meeting in 1980 to allow members of the two organizations to interact. A Bridge Committee was formed to plan for the 1980 meeting and work towards merging the two Associations. During his address, the President emphasized the need for Affiliate organizations to promote Membership in IAMFES, stating that new Members and new ideas for the organization were needed.

The 1978 Annual Meeting was dedicated to the memory of H. L. "Red" Thomasson, former Executive Secretary and President of the Association. Held in Kansas City, Missouri, it was attended by 400 people, making it one of the larger meetings in IAMFES history. The Association President pointed out that there were now 29 Affiliate organizations and Membership stood at 2,300. He pointed out the need for a substan-

tial increase in Membership during the next year. Work was reported on an information pamphlet that would be available within the next year.

Also in 1978, the Journal was still lacking articles of general interest. The Executive Secretary reported that the Journal had expanded to its largest volume ever and was receiving papers from top European scientists. It was suggested that presentations and talks given at Affiliate meetings be made available for publication. Membership records and journal mail lists were computerized for the first time by the end of the year.

The 1979 Annual Meeting was held just across the street from Disney World in Orlando, Florida. The President challenged the organization to develop a plan that would lead to improvement, not just in dollars, but in image and stature for providing service and leadership in food protection throughout the world. A report presented proposed the publication of two journals: one oriented to sanitarians and fieldmen, and the other a scientific publication. Further cost studies were to be completed prior to beginning production.

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Highlights of the Executive Board Meeting

January 21 – 22, 2001

Minneapolis, Minnesota

Following is an unofficial summary of actions from the Executive Board Meeting held January 21-22, 2001 in Minneapolis, Minnesota:

Approved the following:

- Minutes of November 12-13, 2000 Executive Board Meeting
- Minutes of November 12, 2000 Executive Board Executive Session
- E-mail votes taken since the November 13, 2000 Executive Board Meeting
- Addition of holiday for IAFP staff to use on one of the following holidays: Martin Luther King Day, Presidents' Day, Good Friday, Rosh Hashanah, Yom Kippur
- Silver and Gold Sustaining Member fee allocations

Discussed the following:

- Communication Update: Reports on *DFES*, *JFP* and the Web site were accepted. Methods to increase *DFES* submission rate and encouraged continuation of "Thoughts on Food Safety" column. *JFP* submissions up by 54% over 1997. Web site continues to expand
- Membership Update: Membership steadily increases. Three new Silver Sustaining Members joined – goal of 10 Gold and Silver by year-end
- Advertising/Exhibits Update: Ad sales out-pace last year. Exhibit Hall reservations for IAFP 2001 stand at approximately 52% of capacity and sponsorship developing nicely – 77% of last year's total committed for this year
- Financial Update: November financial statements were presented. Investment accounts suffered declines
- Winter Affiliate Newsletter mailed in January
- IAFP Officer presentations to four Affiliate organizations this past fall. Six scheduled for spring meetings
- Affiliate Delegates and Presidents must be IAFP Members per IAFP Bylaws
- Affiliate Annual Reports due to IAFP by February 19, 2001
- Exploring the establishment of a Southern California Affiliate
- *JFP* Editor selection committee will report to Board by March 30, 2001
- Retail Food Safety and Quality PDG development of technical guidelines for retail operations
- Guidelines for Committee and PDG use of the IAFP Web site
- PDG Mission statements due to IAFP by March 30, 2001
- PDG Newsletter guidelines
- Student PDG to hold a Job Fair at IAFP 2001
- Program Committee developed program for IAFP 2001
- Tours and social events to be held at IAFP 2001
- Toured meeting space at Minneapolis Hilton
- Local Arrangements Committee preparations
- Planning for 2001 and 2002 Annual Meetings
- Future Annual Meeting site selection
- IAFP 2003 dates – July 13-16, 2003 in New Orleans, Louisiana
- Results of the Produce Safety Workshop, November 12, 2000 in Guadalajara, Mexico
- Development of additional produce safety workshops for Central America region
- Development of three workshops to precede IAFP 2001
- IAFP on the Road – United Fresh Fruit & Vegetable Association March 17, 2001, Food Safety Summit April 17, 2001
- Updated sections for the IAFP Policy and Procedures Manual
- Spanish version of *Listeria monocytogenes* article to print in *DFES*
- World Health Organization – continue process to become a non-governmental organization (NGO) designee of WHO
- Development of an "International Award" to be given at IAFP 2002
- Establishment of a Corporate Challenge to raise funds for the IAFP Foundation
- Secretary election – ballots mail by February 1, 2001, due to IAFP office March 23, 2001
- Tanya Wheeler Memorial Fund – will fund handicap door access at the Des Moines Botanical Center
- HACCP and Foodborne reprints authorized for continued distribution
- International Council of Professionals in Food Safety newsletter named Thoughts for Food Safety Monthly

Next Executive Board meeting: April 23-24, 2001
Des Moines, Iowa

International Association for Food Protection

2001–2002

Secretary Election

The following page contains biographical information for the 2001-2002 Secretary candidates. Review the information carefully as you make your voting decision.

Ballots were mailed to all International Association for Food Protection Members during the first week of February. Completed ballots are due back to the Association office by March 23, 2001. Sealed ballot envelopes are forwarded to the Tellers Committee for opening and counting. Watch for the election results in the May issue of *Dairy, Food and Environmental Sanitation*.

If you have questions about the election process, contact David W. Tharp, CAE, Executive Director at 800.369.6337, or 515.276.3344, or E-mail dtharp@foodprotection.org.

The Candidates

Kathleen A. Glass

David A. Golden

Biographical Information

Kathleen A. Glass

Kathleen A. Glass is a Food Safety Microbiologist at the Food Research Institute at the University of Wisconsin-Madison. She designs and coordinates microbial challenge studies and assists the food industry in developing formulation-safe foods. Her research interests include the safety of low acid refrigerated foods, processed meat and process cheese products, focusing on the control of *Clostridium botulinum*, *Listeria monocytogenes*, and *Escherichia coli* O157:H7.

Ms. Glass has been an active Member of IAFP and its Wisconsin Affiliate (WAMFS) since 1990. Within IAFP, she has served as a member of the Program Committee, Meat and Poultry Safety and Quality Professional Development Group, Nominating Committee, Black Pearl Selection Committee, and as Chairperson of the Developing Scientist Awards Committee. She has organized and chaired numerous Annual Meeting symposia as well as presented technical papers. On the local level, she was elected to the WAMFS Executive Board in 1999 and will serve as President during the 2001-2002 term. Ms. Glass is the 2001 Conference Chairperson for an annual conference held jointly between WAMFS and Wisconsin Environmental Health Association and Wisconsin Association of Dairy Plant Field Representatives.

In addition to IAFP and WAMFS, Ms. Glass is a member of the Institute of Food Technologists, American Society of Microbiology, and Sigma Xi. She has published 17 scientific papers, has been an invited speaker at numerous workshops on food microbiology, dairy HACCP, process meat safety, and *Listeria* control methods, and is a guest lecturer for undergraduate and graduate UW-Madison courses in food bacteriology and food fermentation.

Ms. Glass received her undergraduate degree in Biology from the University of Wisconsin-Eau Claire. She taught high school biology for four years before earning her Master's of Science degree from Northern Illinois University in 1985. She joined the Food Research Institute in 1985, and is also currently completing a Doctorate in Food Microbiology and Safety at the University of Wisconsin-Madison.

David A. Golden

David A. Golden, Ph.D., is an Associate Professor of Food Microbiology with the Department of Food Science and Technology at the University of Tennessee. He joined the faculty at the University of Tennessee in 1993. Before that, Dr. Golden spent two years as a microbiologist with the Food and Drug Administration in Washington, D.C., where he worked in the areas of food safety research and regulatory compliance as related to food safety.

Since joining IAFP in 1993, he has been an active Member in the Association, presenting technical papers at Annual Meetings and serving on IAFP committees. He served as a member of the Developing Scientist Awards Committee from 1993 through 1997 and chaired the committee in 1996. Dr. Golden served as a member of the IAFP Program Committee from 1995 through 2000, chairing the committee in 2000. Additionally, he is presently, and has been for several years, a member of the *Journal of Food Protection* Editorial Board. At the local level, Dr. Golden served as a member of the Local Arrangements Committee for the 1998 Annual Meeting in Nashville.

Other professional affiliations for Dr. Golden include: Professional Member of the Institute of Food Technologists; Co-Editor of the IFT/ASM *Food Microbiology Newsletter*, and Associate Editor of the *International Journal of Food Microbiology*. At the University of Tennessee, he has received awards from Gamma Sigma Delta for excellence in research and teaching, the College of Agricultural Sciences and Natural Resources Outstanding Faculty Advisor Award, and the Institute of Agriculture's T.J. Whatley Distinguished Young Scientist Award. He has authored or co-authored over 35 publications on food microbiology and safety and over 50 technical presentations given at professional meetings.

Dr. Golden received his M.S. and Ph.D. degrees in Food Science and Technology, with a focus on food microbiology, and his B.S. degree in microbiology, all from the University of Georgia. His current research focuses on ecology, detection, and control of foodborne pathogens, such as *Escherichia coli* O157:H7 and *Listeria monocytogenes* in foods.

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UpDates

Silliker Names Brannon Chief Operating Officer

Silliker Laboratories Group, Inc. has hired George Brannon as chief operating officer for North American operations. He will be responsible for the organization's network of laboratories in the United States and Canada and oversee the corporate service groups at its Homewood, IL, headquarters. Brannon reports to president and CEO Russell S. Flowers, Ph.D.

With 25 years of extensive sales, marketing, and operations experience, Brannon most recently served as the industrial division president of NALCO Chemical Company.

His career at NALCO involved him in all aspects of the business and included assignments in Latin America, Europe, and the Pacific. Brannon, a member of Silliker's advisory board in the early 1990s, assumes many of Dr. Flowers' management duties. This will permit Dr. Flowers to devote more time to strategic issues, as well as a continued focus on customers, scientific issues, and industry affairs.

New General Manager Assumes Duties at Renaissance Industries' Laurinburg, NC Operation

A new general manager has been appointed at the Laurinburg, NC facility of Renaissance Industries. He is Dennis C. Kovacs, who replaces Wayne Cain, who recently became corporate vice president of technology of Renaissance. Kovacs was vice president of operations at Spartanburg Stainless Products before joining Renaissance. Both companies are members of The Reserve Group, a privately-owned Akron, OH firm that specializes in the acquisition, revitalization and management of basic manufacturing companies.

Kovacs earned a bachelor's degree in industrial engineering from Kettering University, formerly General Motors Institute in Flint, MI. He has more than 20 years of engineering and operations management experience. He implemented QS9000/QS9001 initiatives and registration as the general manager of Newcor, Inc. Kovacs also served in the US Army for two years as a weapons development specialist.

Alfa Laval Appoints Potts Vice President and General Manager of Newly Consolidated Company

The new Alfa Laval company, created as a result of Alfa Laval Flow's consolidation with Tri-Clover, Inc., has named Keith Potts vice president and general manager.

The most recent president of Tri-Clover, Inc., and former president of Alfa Laval Flow, Potts will now oversee both companies as they consolidate to become one entity. He will act as vice president and general manager of the new company immediately. Tri-Clover's current manufacturing facility, located in Kenosha, WI, will continue to operate, but Potts will manage the consolidation and department activity from the Pleasant Prairie location, where the sales and marketing activities will be headquartered.

Potts, former president of G&H Products Corp., the first Alfa Laval market company which officially became Alfa Laval Flow in 1998, became president of Alfa Laval Flow upon the integration of three US Alfa Laval companies: G&H Products, Alfa Laval Pumps and Alfa Laval Saunders. He joined G&H Products Corp. in 1984 as warehouse manager and also served the company as an inside sales representative, district sales manager, operations manager and national sales manager before becoming company president.

Bilingual Technical Support Representative Joins Celsis to Support Its Explosive Growth in Latin America

Celsis Inc. welcomes Joann Cintron to the technical support team, serving its Latin American customer base.

Cintron, a scientist, brings numerous years of experience and industry expertise in internal regulatory compliance audits, documentation control, and daily QA and RA functions to Celsis' technical support team. Prior to joining Celsis, Cintron has held similar positions with Home Diagnostics and Baxter Healthcare Diagnostics.

Most recently, Cintron was responsible for overseeing all quality assurance departmental functions, including responsibility for developing and implementing process improvements and ensuring compliance to standardization bodies including ISO and AALA. Cintron has a Master's Degree in international business administration from Nova Southeastern University, and earned her undergraduate degree from Oral Roberts University with an emphasis in science and chemistry.

EDITOR'S NOTE: In the February 2001 issue of *DFES*, the article titled "Impediments to Global Surveillance of Infectious Diseases: Consequences of Open Reporting In a Global Economy" (reprinted from the *Bulletin of the World Health Organization, 2000,* 78:1358-1367) starting on page 123 was printed with the references omitted. The references are listed below. We apologize for this error.

REFERENCES

1. The world health report 1996 – *fighting disease, fostering development.* Geneva, World Health Organization, 1996.
2. Fidler, D. Return of the fourth horseman: emerging infectious disease and international law. *Minnesota Law Review, 1997,* 81:771.
3. *International health regulations,* third annotated edition. Geneva, World Health Organization, 1983.
4. Zacher, M. Global epidemiological surveillance: international cooperation to monitor infectious disease. Global public goods. New York, Oxford University Press, 1999.
5. Heymann, D., and G. Rodier. Global surveillance of communicable diseases. *Emerging Infectious Diseases,* 1998, 4:362–365.
6. *Fact Sheet Number 200.* Geneva, World Health Organization, 1996.
7. *Preventing emerging infectious diseases: a strategy for the 21st century.* Atlanta, GA, Centers for Disease Control and Prevention, 1998.
8. *Removing obstacles to healthy development. World Health Organization Report on Infectious Diseases.* Geneva, World Health Organization, 1996.
9. *Executive Summary: CISET Working Group on EID,* 1998. Unpublished, available at (www.whitehouse.gov/WH/EOP/OSTP/CISET/HTML/exsum.html).
10. *The revision of the IHR.* Geneva, World Trade Organization, 1998 (unpublished document G/SPS/GEN/59).
11. *Operational guidelines,* Geneva, World Health Organization, (Communicable Diseases, unpublished document).
12. Revision of the International Health Regulations: progress report July 1999. *Weekly Epidemiological Record* 1999, 74(30):252–253.
13. *Agreement on the Application of Sanitary and Phytosanitary Measures,* Geneva, World Trade Organization, 1995.
14. *Understanding the WTO Agreement on Sanitary and Phytosanitary Measures.* Geneva, World Trade Organization, 1998.
15. *Information paper 1: A comparison of the functions and requirements in public health and trade.* Geneva, World Health Organization, 1999 (unpublished document WHO/CDS/CSR/99.2).
16. John, J. T. Final thoughts on India's 1994 plague outbreaks. *Lancet,* 1995, 346:765.
17. Burns, J. F. Thousands flee Indian city in deadly plague outbreak. *New York Times,* September 24, 1994.
18. *Plague surveillance, vol. 1.* Atlanta, GA, Centers for Disease Control and Prevention, 1995.
19. India says spread of plague is halted. *New York Times,* October 4, 1994.
20. Human plague in 1996. *Weekly Epidemiological Record,* 1998, 73(47):366–369.
21. Deodhar, N. S., V. L. Yernul, and K. Banerjee. Plague that never was: a review of the alleged plague outbreaks in India in 1994. *Journal of Public Health Policy,* 1998, 19:184–199.
22. India: plague ending says health group, but world still wary. *International Press Service.* October 13, 1994.
23. Dahlburg, J. Plague scars image, economy of modern India. Asia: epidemic reminds trade giant that social change hasn't kept up with business strides. *Los Angeles Times,* October 5, 1994.
24. Burns, J. Plague in India giving visitors second thoughts. *New York Times,* October 9, 1994.
25. Jain, N. India's trade deficit rises. *United Press International,* December 6, 1994.
26. Fidler, D. et al. Emerging and re-emerging infectious diseases: challenges for international, national, and state law. *International Lawyer;* 1997, 31:778–799.
27. Levy, C., and K. Gage. Plague in the United States, 1995-1997. *Infection in Medicine,* January 1999, 54–63.
28. International notes cholera – Peru 1991. *Morbidity and Mortality Weekly Report,* 1991, 40(6):108–110.
29. *Import ban on fish products from Africa not the most appropriate answer.* Rome, Food and Agriculture Organization, 1998 (FAO Press Release 98/21).
30. Cholera outbreak – Peru, Ecuador, and Colombia. (Reprint of World Health Organization report *Small Risk of Cholera Transmission by Food Imports.*) *MMWR of CDC,* 1991. 40:225.
31. Peru to go on with fish exports despite alleged contamination. *Xinhua General Overseas News Service,* February 16, 1991.
32. Atwood, R. Peru scorns "unfair" trade practices over cholera epidemic. *Reuters North American Wire,* February 26, 1991.
33. Long, W. Market focus: cholera compounds Peru's economic misery: along with the human losses, the epidemic has taken a toll on tourism and exports – two key sectors of the struggling country. *Los Angeles Times,* April 23, 1991.
34. Peru: Europe's ban on imports may affect the whole Andean area. *International Press Service,* March 22, 1991.
35. Chile: losses from cholera could reach $500 million. *International Press Service,* May 2, 1991.
36. Heymann, D., and G. Rodier. Global surveillance of communicable diseases. *Emerging Infectious Diseases,* 1998, 4:362–365.
37. Harris, E., and N. Kadir. *A low cost approach PCR: appropriate transfer of biomolecular techniques.* New York, Oxford University Press, 1998.
38. Fidler, D. Globalization, international law, and emerging infectious diseases. *Emerging Infectious Diseases,* 1996, 2:77–84.
39. U.S. lifts import warning on Peruvian fruits, vegetables. *Xinhua General Overseas News Service,* May 1, 1991.
40. Plotkin, B., or A. Kimball. Designing an international policy and legal framework for the control of emerging infectious diseases: first steps. *Emerging Infectious Diseases,* 1997, 3:1–9.
41. Plotkin, B., or A. Kimball. Designing an international policy and legal framework for the control of emerging infectious diseases: first steps. *Emerging Infectious Diseases,* 1997, 3:1–9.

APHA New Crumbine Award Co-Sponsor

The Foodservice & Packaging Institute, Inc. (FPI), on behalf of the co-sponsors of the *Samuel J. Crumbine Award for Excellence in Food Protection at the Local Level*, announced that the American Public Health Association (APHA) will become a co-sponsor of the Award, which annually recognizes excellence in food protection services at public health agencies in the United States and Canada.

"APHA is pleased to promote excellence in food protection by co-sponsoring the Crumbine Award," said Mohammad N. Akhter, MD, MPH, executive director of APHA. "This Award has a positive impact on local health departments and, as a result, the public's health." A representative of APHA will participate in the 2001 Crumbine Award Jury meeting on May 5th that will determine the 2001 winner. The winning program will be announced in mid-May.

Named for one of America's most renowned health officers and health educators – Samuel J. Crumbine, M.D. (1862-1954) – the Award has elevated the importance of food protection programs within local public health agencies and has inspired excellence in the planning and delivery of those services. The Crumbine Award was first offered in 1955 and has been presented almost every year since.

In addition to APHA and FPI, the sponsors of the Crumbine Award are the American Academy of Sanitarians, Association of Food & Drug Officials, Conference for Food Protection, International Association for Food Protection, International Food Safety Council, National Association of County and City Health Officials, National Environmental Health Association, National Sanitation Foundation International, and Underwriters Laboratories, Inc.

International Association for Food Protection

NEWS

Glickman Announces Food Safety Rule on Retained Water in Meat and Poultry

Agriculture Secretary Dan Glickman has announced a new USDA requirement intended to improve the safety of raw meat and poultry products.

The new rule requires processors to justify any retained water in raw products as an unavoidable consequence of their process used to meet food safety requirements. Processors will be required to list clearly either the percentage of retained water or the maximum percentage of absorbed water on each product label. Those that demonstrate there is no retained water in their products may choose not to label their product with a retained-water statement or to make a no-retained-water claim on the product.

"This step provides consumers with additional information about what's in the meat and poultry they purchase, helping them to make more informed choices," said Glickman.

This final rule takes effect one year after the Jan. 9, 2001, publication date in the Federal Register. This one-year period will enable USDA's Food Safety and Inspection Service to prepare sampling, testing, and document review procedures; train agency personnel in the new procedures; and develop a new national reference database on the natural moisture content of raw products in the various meat and poultry product classes. Industry-wide water retention limits, multi-establishment water retention limits, or single-establishment water retention limits will be established using data collected under a written protocol.

In conjunction with this rule, FSIS is also revising poultry chilling regulations. These revisions will improve consistency and better reflect current technological capabilities and good manufacturing practices.

Editor's Note: This rule is under review by the new Bush administration.

Mandatory HACCP Implementation in All Canadian Establishments Registered Under the Meat Inspection Act

In December 1999, a communiqué was issued by Mr. Ron Doering, president of the Canadian Food Inspection Agency (CFIA), stating the CFIA's intention to move towards the implementation of mandatory Hazard Analysis Critical Control Point (HACCP) in all federally registered meat and poultry processing establishments registered under the Meat Inspection Act (including storages and slaughter plants.) The communiqué further stated that CFIA would work closely with the meat and poultry sectors over the coming months to develop the best approach for implementing mandatory HACCP.

Since the distribution of this communiqué, a government steering and developmental team has been formed to coordinate all aspects of the proposed mandatory HACCP initiative.

The steering committee will be undertaking ongoing consultations with industry and other stakeholders throughout this process. Initial consultative meetings have recently been scheduled with industry represen-

tatives and associations in order to determine the most effective and efficient means of implementing mandatory HACCP in Canadian Registered Establishments.

Additionally, industry information days will be scheduled to take place during the first half of 2001 to give establishment operators and other government officials further information about the process and allow them to comment on the proposal.

CFIA staff will also be available to meet individually with operators of establishments who are unable to attend the above meetings because of travel or other constraints.

FDA Announces Availability of *Vibrio parahaemolyticus* Risk Assessment

The Food and Drug Administration (FDA) announced the availability of a draft risk assessment report on the estimated public health risks associated with raw oysters containing pathogenic *Vibrio parahaemolyticus*.

V. parahaemolyticus is a bacterial species that occurs naturally in oysters, and occasionally this organism causes illness in humans, following the consumption of raw oysters. Most often, illness caused by *V. parahaemolyticus* occurs as sporadic cases of self-limiting gastroenteritis, with symptoms such as diarrhea, vomiting, and abdominal cramps. In recent years, however, several outbreaks have been caused by *V. parahaemolyticus*, involving dozens to hundreds of consumers. Also, though rare, the organism can produce a life-threatening septicemia, especially in people having underlying medical conditions such as liver disease or immune disorders.

The draft risk assessment evaluated factors that affect the prevalence of *V. parahaemolyticus* in oysters before and after harvesting. It also estimated the impact of several preventive and intervention measures aimed at reducing the incidence of *V. parahaemolyticus* in oysters, including the Interstate Shellfish Sanitation Conference (ISSC) guidance of limiting viable *V. parahaemolyticus* to 10,000 or fewer cells per gram of seafood.

The draft risk assessment attempted to address a number of specific questions, including how often *V. parahaemolyticus* bacteria occur in water and shellfish, the relationship of the level of *V. parahaemolyticus* ingested to the severity of illness, the differences in dose-response for consumers with different health conditions, and the influence of post-harvest handling on the numbers of *V. parahaemolyticus* in oysters.

The FDA began this risk assessment project in 1999 and has also held public meetings seeking scientific information and suggestions regarding the risk assessment project. Having completed the draft risk assessment, the FDA now is seeking comments on the technical aspects of this draft report in the following areas: (1) assumptions incorporated, (2) modeling approach, (3) data sets employed, and (4) transparency of the project and report. The FDA plans to review and evaluate all public comments and make modifications as appropriate.

Risk Assessment and Action Plan for *Listeria monocytogenes* is 'Solid Forward Progress for Food Safety' Says NFPA

A draft assessment and action plan addressing the relative risk to public health from *Listeria monocytogenes* among selected categories of ready-to-eat foods, to be released January 19 by the Food and Drug Administration (FDA) and the US Department of Agriculture, (USDA) "is solid forward progress for food safety," according to the National Food Processors Association (NFPA).

"This risk assessment provides government and the food industry with important information that can be used to target our food safety efforts at those areas where they will be most effective," said Dr. Rhona Applebaum, NFPA's executive vice president of scientific and regulatory affairs. "And the action plan, which is based on the data contained in the risk assessment, sets an agenda for further enhancing the safety of the food supply."

The risk assessment and action plan were among several food safety-related activities or rulemakings to be announced January 19 by the federal government.

"In releasing this data, FDA and USDA made it clear that listeriosis is a disease that primarily impacts 'at-risk' subpopulations, which include pregnant women, older adults, infants and those with compromised immune systems," Dr. Applebaum noted. "It is particularly important that these individuals, or those who care for them, follow proper food handling and preparation for all foods, especially those with a greater potential risk to become contaminated with *Listeria monocytogenes*."

Dr. Applebaum pointed out that "It is important that consumers understand that the risk assessment is not a finding that certain foods are dangerous. Rather, it is a assessment of where the greatest potential risk may exist for foods to become contaminated with *Listeria monocytogenes*. In this way, government and industry can best target our food safety efforts."

"While important, this risk assessment is a work in progress. It is a good first step, but signifi-

cant data gaps exist and more data is needed. NFPA's Research Foundation is currently working on a project for the United States government to gather data on *Listeria monocytogenes*," Dr. Applebaum said.

Regarding the action plan, Dr. Applebaum noted that "NFPA endorses the plan's emphasis on enhanced education of both consumers and health care providers, particularly to reach targeted subpopulations most impacted by listeriosis. NFPA looks forward to reviewing both the draft risk assessment and the action plan, and we will continue to work closely with FDA and USDA on addressing this issue."

Update on Ruminant Feed (BSE) Enforcement Activities

Bovine spongiform encephalopathy (BSE) is a type of "transmissible spongiform encephalopathy" disease that infects cattle. After the first case in 1986 in the United Kingdom, BSE quickly became an epidemic in cattle herds there. No cases of BSE have been found in United States cattle, despite active monitoring.

Rendered feed ingredients contaminated with an infectious agent are believed to be the source of BSE infection in cattle. Some of the feed given to cattle includes remnants of the slaughtering process, such as the brain and spinal cord, which may harbor the agent that causes BSE. Although the material is cooked during the rendering process, the BSE agent can survive.

To prevent the establishment and amplification of BSE through feed in the United States, FDA implemented a final rule that prohibits the feeding of mammalian protein to ruminant animals in most cases. This rule, Title 21 Part 589.2000 of the Code of Federal Regulations, became effective on August 4, 1997.

FDA developed an enforcement plan with the goal of 100% compliance with this rule. For the first two years it was in effect, the enforcement plan included education as well as inspections with FDA taking compliance actions for egregious actions or repeated non-compliance. As part of the enforcement plan, an assignment was issued to all FDA district offices in 1998 to conduct inspections of 100% of all renderers and feed mills and some ruminant feeders to determine compliance.

FDA's Center for Veterinary Medicine (CVM) has assembled data from the inspections conducted thus far, and presented the following data in a conference call FDA held with federal and state feed control officials on January 9, 2001.

To date, there have been a total of 9,947 inspections. The majority of these inspections (around 80%) were conducted by state officials and the remainder by FDA. Various segments of the feed industry had different levels of compliance.

For renderers, who are at the "top of the pyramid" since they are the first to handle rendered protein, and who send materials to feed mills and other ruminant feeders: Total number of inspections – 239. Firms handling prohibited material – 180; Firms whose products were labeled with the required caution statement – 84%; had a system to prevent commingling – 72%; and followed recordkeeping regulations – 96-98%.

For FDA licensed feed mills – 1,240 total – inspected – 846. Of those feed mills inspected, 347 were handling prohibited material: Firms whose products were labeled with the required caution statement – 80%; had a system to prevent commingling – 91%; and followed recordkeeping regulations – 98%.

For non-FDA licensed feed mills – 4,344 inspected (FDA does not know the total number since they are not required to be licensed by the Agency, but it could be 6,000 to 8,000.) Of those feed mills inspected, 1,593 were handling prohibited material: Firms whose products were labeled with the required caution statement – 59%; had a system to prevent commingling – 74%; and followed recordkeeping regulations – 91%.

FDA is continuing its enforcement efforts to achieve the goals of 100% inspection of all renderers and feed mills and some ruminant feeders and 100% compliance with the ruminant feed regulations. FDA field offices have an assignment to re-inspect 700 firms that were not in full compliance with the rule but have committed to implementing the regulation. In addition, FDA is seeking assistance from state feed control officials to identify non-FDA licensed feed mills and to conduct additional inspections in all categories. FDA anticipates higher levels of compliance after completion of follow-up inspections.

Outbreak of *E. coli* O157:H7 Infection in Spain

One hundred and eighty-one cases have been reported in the largest outbreak of *Escherichia coli* O157:H7 infection yet identified in Spain. The cases are 150 school children at four schools in Barcelona and 31 household contacts.

Cases became ill between September 19 and November 5, 2000. Six children developed haemolytic uraemic syndrome (HUS), but all recovered. The attack rates in the four affected schools ranged from 4% to 56%. Preliminary enquiries suggested

that the vehicle of infection was sausage served by a catering company on September 18, 2000. The catering company supplied 10 schools, one factory, and a home for elderly people. Cases arose at schools where the sausages were not heated; at the remaining schools the sausages had been heated. Inspection of the catering company identified irregularities and the company was closed down. No food samples were investigated. *E. coli* O157:H7 was isolated from 27 cases, and eight isolates were shown to be phage type 2.

This is the seventh outbreak of *E. coli* O157 infection to have been reported to the National Centre of Epidemiology in Spain since 1989. The next largest affected tourists from several countries who had visited the Canary Islands in 1997: 14 cases were confirmed in tourists, and three developed HUS.

In Spain, surveillance of *E. coli* O157 infection is undertaken by the Microbiological Information System, a voluntary laboratory based system, and by the National Reference Laboratory, which contributes to Enternet. *E. coli* O157 infection is not a statutorily notifiable disease in Spain, but it is obligatory to notify all outbreaks. In the past 10 years, only 41 and 12 cases have been reported to both surveillance systems, respectively.

Scientists Target *E. coli* O157:H7 Controls

Several promising new options for controlling *E. coli* O157:H7 at the farm level are being tested by scientists at the Lethbridge Research Centre. That effort could help control the pathogen right through the food chain.

E. coli O157:H7 has captured public attention because of the dramatic health hazard it presents. The pathogen occurs naturally at the production level, so controlling it at this point may help to control it through the food cycle, says Tim McAllister, a lead researcher on *E. coli* at the Lethbridge Research Centre.

Management factors such as minimizing contamination through water troughs and feed bunks are critical because the organism can survive in those environments for several weeks or months. McAllister says Susan Buchko, a doctoral student at Lethbridge, has recovered the organism from mouth swabs of steers, as well as in feed, water and manure.

In addition, composting or stockpiling manure prior to application may reduce the spread of *E. coli* O157:H7 to cattle, crops and water sources.

Bacteriophages, viruses that infect and, ultimately, destroy bacteria, are another control option. "Initial studies using bacteriophages to target *E. coli* O157:H7 showed positive results and the researchers have high hopes for this method," says McAllister. Bacteriophages have the ability to target a single organism and are not harmful to other "good" bacteria living in cattle intestines. As well, administering the viruses can be accomplished without changing cattle diets. Dietary controls may be another method to prevent the pathogen from spreading.

A recent study conducted by Buchko at the Animal Disease Research Institute found that the diet of feedlot animals was a factor in the number of animals that shed *E. coli* O157:H7. Under controlled conditions, a larger number of animals shed the pathogen in their feces when fed an 85 percent barley diet, compared to an 85 percent corn diet or a 70 percent barley/15 percent whole cottonseed diet. A larger number of animals on the barley diet shed the pathogen, however, there was no difference in the number of *E. coli* O157:H7 shed by animals fed different diets.

As a result, McAllister cautions that the effect of diet on *E. coli* O157:H7 is still under some debate. While some studies have found that hay-fed cattle shed *E. coli* O157:H7 for a longer period of time than grain-fed cattle, other researchers believe that the shedding of *E. coli* O157:H7 is increased by high grain diets. It is possible that shedding of *E. coli* O157:H7 is more related to the stress level of the animal than the actual diet. Further research will determine the role of diet in managing *E. coli* O157:H7.

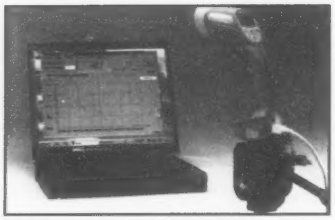
"The Lethbridge research complements work at other institutions," says McAllister. Other options being explored for *E. coli* O157:H7 control, include the development of a "vaccine" that would reduce the colonization of *E. coli* O157:H7, or decrease the duration of colonization in the intestines of cattle.

Other studies are looking at "probiotics," an approach that encourages the increased establishment of "good" bacteria, which ultimately helps prevent problem organisms such as *E. coli* O157:H7 from establishing in the intestinal tract.

"There's growing confidence that scientific approaches will improve the ability to control *E. coli* O157:H7," says McAllister. With cattle identified as one of many potential causes of contamination, the beef industry is taking a lead role in funding this research in hopes of finding a solution.

Lethbridge Research Centre is Agriculture and Agri-Food Canada's national headquarters for beef production efficiency and a leading centre of sustainability in agriculture.

Industry Products



Palmer Wahl Instrumentation Group

Professional Generation of Infrared Thermometers with Advanced Capabilities from Instrumentation Group.com

The DHS 250 Heat Spy® series from Wahl Instruments, Inc. brings a new level of professional performance to hand-held non-contact temperature measurement instrumentation. DHS 250 series Heat Spys offer an expanded measurement range, now including surface temperatures up to 900°C (1652°F) while still maintaining 1% of reading accuracy over a spectral range of 8 to 14µm. The DHS 250 design provides a rugged, ergonomically pleasing instrument that is easy and comfortable to use. Laser sighting is included on all series models to improve target location and overall accuracy.

The Wahl DHS 250 Heat Spy Professional line consists of three models, DHS 250, DHS 250M, and DHS 250MS, all of which feature a dual back-lit LCD for current, hold, max, min, average, and differential temperature readings. All models also feature adjustable emissivity, settable audible high alarm, °F or °C scale selection, tripod mount and trigger lock for time-lapse readings, 50:1 target size-to-distance ratio (nominal), foam-lined molded case, and one year warranty. All have a built-in RS232, 9600 Baud interface port for online data acquisition and are powered by one 9V battery.

In addition to the above capabilities, Model DHS 250M includes a clock function, settable audible low alarm, 1 mV/°F or °C analog output (cable optional), internal data storage of up to 250 values (with adjustable intervals). Windows-compatible Wahl software and computer interface cable are available as an option for the DHS 250 and DHS 250M models.

The DHS 250MS Heat Spy offers the professional technician the ultimate in hand-held infrared thermometers by providing all the tools required for full utilization of its integral capabilities. All DHS 250 and DHS 250M features are incorporated, with the inclusion of the Windows-compatible software and cable required for computer interface.

The Wahl DHS 250 series Heat Spys are ideally suited for measuring surface temperatures of steam traps, asphalt, plastics, paper, ceramics, chemicals, pipes, vents, motor bearings, textiles, circuit panels, mold platens, and many more.

Palmer Wahl Instrumentation Group, Asheville, NC

Reader Service No. 242

BD BBL™ Herrold's Egg Yolk Agar Now Features a New Antibiotic Formula

BD Diagnostic Systems, announces the availability of BD BBL™ Herrold's Egg Yolk Agar (HEYA) with a new antibiotic formula containing amphotericin B, nalidixic acid and vancomycin. Known as BD BBL™ HEYA with ANV, the reformulation of the previous media with antibiotics improves its performance as the "Gold Standard" for the cultivation of *Mycobacterium paratuberculosis (M. avium* subspecies *paratuberculosis*) from fecal and tissue specimens. The added antibiotics control overgrowth of microorganisms: amphotericin B adds to the selectivity of the media by inhibiting growth of fungi, while vancomycin and nalidixic acid reduce bacterial contamination.

The new formulation was created in response to the customer's need for a more selective medium. BD senior project scientist, Don Callihan, Ph.D., who worked on the development of this product observes, "This really was developed in direct response to customer requests. They had been using these antibiotics in their laboratories for a long time. The new formulation should help reduce the amount of retesting due to bacterial contamination." One of the most difficult aspects of working with fecal specimens is to reduce (decontaminate) the

The publishers do not warrant, either expressly or by implication, the factual accuracy of the products or descriptions herein, nor do they so warrant any views or opinions offered by the manufacturer of said articles and products.

massive numbers of bacteria normally present in a fecal specimen, while maintaining the viability of *M. paratuberculosis* organisms that may be present. When some laboratories reported to BD that they were able to reduce bacterial overgrowth by adding antibiotics to their BBL HEYA, BD responded by reformulating BBL HEYA to include amphotericin B, nalidixic acid and vancomycin.

M. paratuberculosis is the etiologic agent of Johne's disease, one of the most widespread bacterial diseases of ruminants (cattle, sheep, goats, etc.) throughout the world, with total losses estimated at $1.5 billion annually for the cattle industry in the United States alone. *M. paratuberculosis* does not grow on ordinary microbiological media and eventually a specialized medium like Herrold's Egg Yolk Agar came to be the recommended medium. Formulated with 13 components, one of the key ingredients of Herrold's Egg Yolk Agar is an enzymatic digest of casein that provides amino acids and other nitrogenous substances. Beef extract and sodium pyruvate are also components, along with egg yolk and glycerol that provide fatty acids and other nutrients required for the growth of mycobacteria.

BD BBL HEYA with ANV is available with added Mycobactin J, an iron-chelating agent required for the growth of *M. paratuberculosis*. A second formulation of BD BBL HEYA with ANV, without added Mycobactin J, permits confirmation of mycobactin dependency, a characteristic that distinguishes *M. paratuberculosis* from other mycobacteria.

BD Diagnostic Systems, Sparks, MD

Reader Service No. 243

Sigma-Aldrich Introduces Cycloheximide from a Microbial Source

Sigma-Aldrich has announced the launch of a new Cycloheximide product offering. This addition to the Sigma-Aldrich product line follows the recent worldwide shortage of Cycloheximide available to the research community. A widely used antibiotic, the chemical is now available as Sigma-Aldrich product number C 7698.

Cycloheximide is classically used in microbial media to isolate or count bacteria in the presence of yeast and molds. More recently it has helped determine the role of protein synthesis in apoptosis, gene expression and steriodogenesis. It has been and remains a powerful tool for the study of many cellular processes. "Only Sigma-Aldrich has the ability to offer large or small scale amounts of Cycloheximide at such a low price, while still maintaining the high quality standards that the industry has come to expect from us," said Roy Winkel, product manager. "We're excited to be able to offer this product, particularly now following the worldwide supply shortage. Cycloheximide is a definite asset to our product line and we're pleased to be able to help researchers worldwide continue their studies with the tools they need," Winkel said.

Sigma-Aldrich develops, manufactures and distributes the broadest range of high quality biochemicals, organic chemicals, chromatography products and diagnostic reagents available in the world. Our products are used in high tech research and development in the life sciences at universities and in industry, for the diagnosis of disease, and as specialty chemicals for pharmaceutical and other manufacturing purposes in more than 160 countries. We are committed to the success of our customers, employees and shareholders through life science, technology and service.

Sigma-Aldrich, St. Louis, MO

Reader Service No. 244

Ultra-Compact Water Activity Meter, When You Can't Bring the Lab with You from Decagon Devices, Inc.

There are many that will benefit from the new portable "Pa_wkit" water activity system. Among them are the on-the-go quality control professional in foods, pharmaceuticals, cosmetics, and those companies without lab facilities. The self-contained battery-operated Pa_wkit is just 4 inches long and weighs only 4 ounces, with an accuracy of ± 0.02 a_w.

Until now, portable quick water activity checks by health inspectors and food scientists didn't exist. Now, however, they can bring the lab with them and with easy calibration, they save time and money.

Water activity affects the ability of microorganisms to proliferate in foods. Therefore, monitoring water activity is a critical control point for many manufacturers. Incorporating water activity testing and other science-based analyses into a food safety program helps ensure the highest quality and safest food supply.

Portable water activity measurements no longer need to be a frustrating experience. With the Pa_wkit you can bring the lab with you.

Decagon Devices, Inc., Pullman, WA

Reader Service No. 245

Dielectric Option Enhances the Range of Application of the Rheometric Scientific Research Modular Rheometer ARES

Rheometric Scientific, Inc. offers dielectric testing capabilities on its advanced research rheometer, ARES. The dielectric option (ARES-DETA) can be added to existing instruments, and provides additional information on the structure of polar materials. When operated simultaneously with the rheological measurement, the dielectric test is an excellent monitor for probing the material's structure changes during flow.

The ARES-DETA measures the capacitance and the conductance of the material between parallel plates. The results allow the determination of the dielectric relaxation spectra, which are used to obtain information on the material's internal structure and structure changes.

The ARES is the advanced Rheometric Scientific Research rheometer, for dynamic mechanical characterization of polymers, polymer blends, paints, coatings, creams, lotions, suspensions, and foods.

Rheometric Scientific, Inc., Piscataway, NJ

Reader Service No. 246

FoodHandler Inc. and Tucker Industries Form Alliance

FoodHandler Inc., manufacturers of Foodhandler® brand disposable gloves and barrier protection products, is pleased to announce a new marketing alliance with Tucker Industries, manufacturers of BurnGuard® brand advanced burn protective apparel.

Under the partnership, FoodHandler will market BurnGuard products with its existing line of food and worker safety products. FoodHandler and Tucker Industries will also partner to develop new products to address both food safety and worker protection.

"BurnGuard products are the ideal compliment to the FoodHandler line," says Dan Grinberg, CEO of FoodHandler. "Tucker's unique position of providing the only NSF certified burn prevention product, as well as a comprehensive worker training program, fits our philosophy like a glove."

FoodHandler Safety Management Services, the educational arm of FoodHandler, will add the BurnGuard SafeStep™ burn injury prevention course to the roster of safety seminars it provides to operators. FoodHandler Safety Management Services already provides ServSafe® certification and similar courses throughout the country.

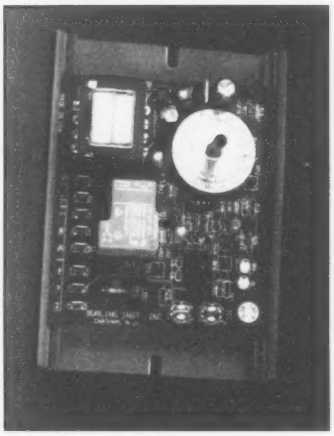
"In addition to preventing injuries, there are important food safety qualities to BurnGuard products. The gloves can be washed while in service, and machine washed for added sanitary assurances. This reduces the risk of cross contamination to an extent that is not possible with other types of oven mitts," adds Grinberg.

FoodHandler Inc., Westbury, NY

Reader Service No. 247

Burling Instruments Inc. Solid State Temperature Controller with Digital or Analog Readout Meets Many OEM Needs

A combination of accuracy, flexibility and affordability make the newly redesigned 1100 Series temperature controllers from Burling Instruments an ideal choice for a wide range of OEM type applications.



Burling Instruments Inc.

The series offers a choice of accurate and highly reliable temperature control options, plus a choice of either analog or digital panel readout modules. Snap-Track™, Burling's quick-mount feature, is standard with all units and all units come complete with screw terminals for thermocouple input and SPDT relay output rated at 10A 120/240 VAC. A remote set potentiometer is optional.

Other features include push-on terminals for easy installation and a wide selection of optional inputs and ranges. Custom designs for OEM applications are a specialty.

Burling Instruments Inc., Chatham, NJ

Reader Service No. 248

General Magnaplate Cuts Cost, Increases Lifespan of Heat Sealing Machinery

In an effort to combat performance problems and aggressive wear and tear, General Magnaplate has created a cost-effective coating and repair

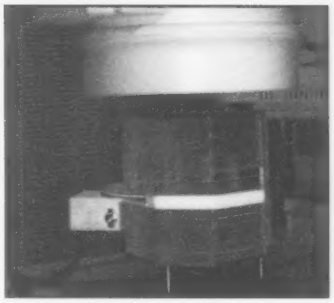
program for heat sealing equipment. The *Coating & Repair Program* literature details exclusive benefits offered by enhancement coatings and the new "One Stop Shop" repair service for seal tooling requirements.

General Magnaplate's "synergistic" coatings, Nedox®, Plasmadize®, Lectrofluor® and Tufram®, produce a hard, dry-lubricated surface on heat sealing equipment parts. The coatings eliminate the need to constantly reapply messy, "non-stick" tapes and protect sealing parts against wear and corrosion over extended time periods.

Additionally, General Magnaplate has introduced a "One Stop Shop" to repair broken sealing equipment. The company will repair and re-coat sealing equipment at a fraction of the cost of purchasing expensive new parts. In many cases, the sealing surfaces and/or mounting ears on the seal bar and sealing jaws may be damaged. In the event the ears are bent or damaged, General Magnaplate will replace the damaged ear by welding in a new one. Once it is welded, the excess material is blended flush with the substrate, and mounting holes are drilled in the proper locations. In addition, set jaws and bars can also incur damage on the sealing surfaces. General Magnaplate can reprofile the sealing surface to blueprint specifications. Once the repairs are made, the seal tooling is coated to a "like new" condition.

General Magnaplate, Linden, NJ

Reader Service No. 249



Nuclear Associates

NEMA SCA&I Cardiac Fluoroscopy Benchmark Phantom from Nuclear Associates

Nuclear Associates' innovative *NEMA SCA&I Cardiac Fluoroscopy Benchmark Phantom* (model 07-680) is a new class of phantom specially developed for effectively evaluating your fluoroscopic system.

The development of the *NEMA SCA&I Cardiac Fluoroscopy Benchmark Phantom* was initiated by the Society of Cardiac Angiography and Interventions (SCA&I) to establish a series of benchmarks for imaging system performance-based, or phantom testing. The *NEMA SCA&I Benchmark Phantom* is the very first phantom design that represents a joint consensus among cardiologists, medical physicists, service engineers and technical staff from all of the major original equipment manufacturers of imaging systems. Nuclear Associates has worked closely with the National Electrical Manufacturers Association (NEMA) and SCA&I for over 2 years on this much needed project and contributed to the successful development of the *NEMA SCA&I Benchmark Phantom.*

The *NEMA SCA&I Cardiac Fluoroscopy Benchmark Phantom* quickly and easily tests imaging-field geometry, working thickness range, spatial resolution, motion blur, low-contrast iodine detectability and phantom entrance dose. It gives you independent confirmation (reassurance of an optimally working system), quick evaluation (the machine is tested in its clinical configuration) and ease-of-use (anyone with some technical knowledge can do the tests to determine if corrective action is necessary).

Nuclear Associates, Carle Place, NY

Reader Service No. 250

New TB Wood's E-trAC® WF2 Sensorless Vector Drive Earns NSF Certification for Food Processing

A new offering of the TB Wood's E-trAC® WF2 Sensorless Vector Drives recently earned certification from the National Sanitary Foundation (NSF) and now meets Food and Drug Administration (FDA) guidelines.

These new WF2 models from Wood's feature robust new enclosures for food area, splash zone use. With a much higher level of resilience and durability than the traditional NEMA 4 / IP66 enclosure, the NSF Series sets a new standard for tough, wash-down applications, in keeping with TB Wood's reputation for rugged product.

Additionally, the TB Wood's Enhanced Operator Interface is standard on the NSF Series. This interface permits a direct numeric entry of values and a 4-line, 16-character display that is easy to read.

TB Wood's Inc., Chambersburg, PA

Reader Service No. 251

Let Us Come to You!

FPI, the Food Processors Institute, is uniquely qualified to conduct company-specific workshops in Better Process Control, Thermal Process Development, Thermal Processing Deviations, and other topics. These workshops are custom tailored to a company's needs and can be held on-site. For further information, **call FPI at 202/639-5944**, fax (202/639-5941), **or visit the FPI website, www.fpi-food.org**.

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Food Processors Institute

NEW from FPI!

Verification and Validation of HACCP Systems: An Advanced HACCP Workshop Manual

Verification continues to be the least understood of the seven HACCP principles. Moreover, validation, a component of verification, continues to torment HACCP teams as they try to determine cost-effective and regulatory-adequate validation procedures for Critical Control Points and their HACCP plans. This manual walks you through the sixth HACCP principle, providing examples and suggestions on how to verify the HACCP system for your company.

To order, call 202/639-5954 or visit the FPI website, www.fpi-food.org.

Food Processors Institute

Reader Service No. 131

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Reader Service No. 124

August 5-8, 2001

Hilton Minneapolis

Minneapolis, Minnesota

Preliminary Program

Sunday, August 5, 2001 — 7:00 p.m.

Opening Session

Monday, August 6, 2001

Morning

Symposia Topics

- Moving Beyond HACCP – Risk Management and Food Safety Objectives, Session I
- Impact of Water Quality on Food Safety
- Food Allergens – Current Issues and Concerns
- Improving Laboratory Quality Assurance in the Real World

Technical Session

- Meat Microbiology

Poster Session

- Produce Microbiology

Afternoon

Symposia Topics

- Moving Beyond HACCP – Risk Management and Food Safety Objectives, Session II
- USDA Competitive Grants in Food Safety and the Awards Process
- Food Safety in the Digital Age
- Dairy Plant HACCP–Where are We and Where are We Going?

Technical Session

- General Food Microbiology

Poster Session

- Meat Microbiology

Tuesday, August 7, 2001

Morning

Symposia Topics

- Joint FAO/WHO Initiative on Microbial Risk Assessment
- Organic Foods: Unique Characteristics and Growth Potential
- Indicator Microorganisms – What do They Indicate, and is It of Any Use?
- Ensuring the Quality and Safety of Extended Shelf-Life Milk Products

Technical Session

- Microbiological Methods

Poster Session

- General Food Microbiology and Methods

Afternoon

General Session —

- Irradiated Foods – Advancing Food Safety?

Business Meeting

Wednesday, August 8, 2001

Morning

Symposia Topics

- *Mycobacterium paratuberculosis* – Villain or Bystander?
- Zero Tolerance – Boon or Bust
- Communicating Science Effectively
- Educating Food Service Workers

Technical Session

- Produce Microbiology

Poster Session

- Meat and Dairy Microbiology

All Day Poster Symposium

- Distribution Containers, Equipment and Vehicles

Afternoon

Symposia Topics

- HACCP: How to Evaluate Success
- The Benefits of Better Government and Industry Relations in Assuring Food Safety
- ILSI North America-sponsored Research Updates

Technical Session

- General Food Microbiology

All Day Poster Symposium

- Detection and Control of Human Pathogens in Fresh Fruits and Vegetables

August 5-8, 2001

Hilton Minneapolis

Minneapolis, Minnesota

EVENT INFORMATION

Evening Events

Cheese and Wine Reception
Sunday, August 5, 2001 (8:00 p.m. - 10:00 p.m.)

Attendees and guests will experience Midwestern hospitality at this traditional Sunday evening reception in the exhibit hall.

Exhibit Hall Reception
Monday, August 6, 2001 (5:00 p.m. - 6:30 p.m.)

Network with fellow food safety professionals during this informal reception while seeing the latest developments in the industry.

Monday Night Social — Mississippi River Dinner Cruise
Monday, August 6, 2001 (6:00 p.m. - 10:00 p.m.)

The mighty Mississippi River is the reason Minneapolis and St. Paul exist today. Feel the history of the Mississippi River on this spectacular dinner cruise. You will quickly escape into an island of nature in the midst of this major metropolitan area with old St. Anthony, where Minneapolis began, on one side and the spectacular downtown skyline on the other. At your leisure you may dine, socialize with friends and colleagues, or walk around the riverboat and experience the view from the upper deck. The riverboat travels through the Upper St. Anthony Falls Lock, the northern most lock of 29 on the Mississippi River and the deepest – it descends 50 feet! You pass under both the historic James J. Hill Stone Arch Bridge and the new Hennepin Avenue suspension bridge. This will be a river experience you will long remember.

Chanhassen Dinner Theater
Tuesday, August 7, 2001 (5:30 p.m. - 11:00 p.m.)

Food and entertainment – what a perfect combination! The people at Chanhassen Dinner Theater know this and have been working hard since 1968 to perfect this concept. Quoted as "the Cadillac of Dinner Theaters," it is the nation's largest professional dinner theater complex. Your ticket includes roundtrip transportation, dinner, and theater ticket. At this time, the show cannot be confirmed (word is it might be "My Fair Lady"). Limited tickets are available.

Minnesota Twins Baseball Game
Tuesday, August 7, 2001 (6:00 p.m. - 10:00 p.m.)

Go Twins! Cheer on the Minnesota Twins as they take on the Cleveland Indians in the Hubert H. Humphrey Metrodome. The Metrodome was the third domed facility in baseball and remains the only air-supported structure of the 30 ballparks. Join your friends and colleagues in a night at the ballpark. Price includes transportation to and from the Metrodome and a reserved seat for the game.

Awards Banquet
Wednesday, August 8, 2001 (7:00 p.m. - 9:30 p.m.)

A special occasion to formally recognize the accomplishments of deserving food safety professionals. An elegant reception and dinner are followed by the awards ceremony. Business attire requested.

Daytime Tours

(Lunch included in all daytime tours)

Twin Cities Highlights Tour
Sunday, August 5, 2001 (9:30 a.m. - 2:30 p.m.)

The fantastic diversity of the Greater Twin Cities Metro Area often catches first-time visitors by surprise. This tour includes both downtowns of St. Paul and Minneapolis. While in Minneapolis you will experience the famous Nicollet Mall, the

skyway network of downtown Minneapolis and the Minneapolis Sculpture Garden. The journey will continue through the Kenwood residential area to see the television home of Mary Tyler Moore, around sparkling lakes and lagoons, and make a short stop at the legendary Minnehaha Falls. Then it is on past Fort Snelling and into St. Paul. A guide will provide commentary on many sites including the trip along stately Summit Avenue, showcasing the best-preserved Victorian mansions in the country. The final stop is at the Minnesota History Center. The Center showcases and preserves the state's historical resources. Lunch will be provided at the History Center. The tour concludes with a drive past the University of Minnesota and an excursion into the St. Anthony Falls area – the birthplace of Minneapolis.

Stillwater, Minnesota
Monday, August 6, 2001 (9:30 a.m. - 3:30 p.m.)

A trip to Stillwater is a trip to Minnesota's yesteryear. Located on the sparkling blue St. Croix River, Stillwater lays claim to being Minnesota's oldest town and the birthplace of the Minnesota Territory in 1849. The tour guide will provide a riding tour of this enchanting old river-town and takes you behind the scenes of history. Anecdotes and incidents from bygone years will illuminate the lives of immigrants and entrepreneurs as you view mansions built by wealthy lumber barons and beautiful old churches on the "Street of Spires." You will stop at the Warden's Home Museum, an 1853 home for 11 wardens who managed the first territorial prison in that part of the country. Next, enjoy a delicious lunch at the famed Lowell Inn. Since 1927 this famous "Mount Vernon of the Midwest" has been a hotel known to serve the very finest food. You will have time after lunch to explore the many boutiques, galleries and shops that line Stillwater's historic streets.

Mansions & Museums Tour
Tuesday, August 7, 2001 (9:30 a.m. - 3:30 p.m.)

The first stop of the day will be the James J. Hill House on Summit Avenue in St. Paul. James J. Hill, the "Empire Builder," purchased a bankrupt railroad in St. Paul in the late 1800s and masterminded its success by building the Great Northern Railway. Completed in 1891, the house has 36,000 square feet, including 32 rooms, 13 bathrooms, and 22 fireplaces. With its carved woodwork, stained glass, and skylit art gallery, it is one of the most impressive residences ever constructed in the Midwest. Next, you will stop at the Cathedral of St. Paul. Modeled after St. Peter's in Rome, it is one of the largest church buildings in North America. Among its many points of interest are the six chapels called the Shrine of Nations in which stand statues of the patron saints carved out of marble. Following the stop at the Cathedral, you will have lunch at Forepaugh's Restaurant, an elegant Victorian mansion complete with a French chef and staff in period costumes. After lunch, your final stop is at the Minneapolis Institute of Arts. The permanent collection includes American, European, Asian, African, Oceanic ancient and Oriental objects. Masterpieces from every age and culture await your discovery.

Affiliate Reception

Affiliate Reception
Saturday, August 4, 2001 (5:30 p.m. - 7:00 p.m.)

Affiliate officers and delegates plan to arrive in time to participate in this educational reception. Watch your mail for additional details.

New Member Reception and Orientation

New Member Reception and Orientation
Saturday, August 4, 2001 (4:30 p.m. - 5:30 p.m.)

If you recently joined the Association or if this is your first time attending an IAFP Annual Meeting, welcome! Attend this informal reception to learn how to get the most out of attending the Meeting. Meet some of today's leaders and gain knowledge on how you too can become a leader in your Association.

Committee Meetings

Committee Meetings
Sunday, August 5, 2001 (7:00 a.m. - 5:00 p.m.)

Committees and Professional Development Groups (PDGs) plan, develop and institute many of the Association's projects, including workshops, publications, and educational sessions. Share your expertise by volunteering to serve on any number of committees or PDGs.

Student Luncheon

Student Luncheon
Sunday, August 5, 2001 (12:00 p.m. - 1:30 p.m.)

Attention students, are you a Member of the Student Professional Development Group (PDG)? Join by signing up for the student luncheon to help you start building your professional network.The mission of the Student PDG is to provide students of food safety with a platform to enrich their experience as Members of IAFP.

International Association for Food Protection

88th Annual Meeting

6200 Aurora Avenue, Suite 200W
Des Moines, IA 50322-2863, USA
Phone: 800.369.6337 • 515.276.3344
Fax: 515.276.8655
E-mail: info@foodprotection.org
Web site: www.foodprotection.org

August 5-8, 2001
Minneapolis, Minnesota

IMPORTANT! Please read this information before completing your registration form.

Meeting Information

Register to attend the world's leading food safety conference.

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- Symposia
- Poster Presentations
- Ivan Parkin Lecture
- Exhibit Hall Admittance
- Cheese and Wine Reception
- Exhibit Hall Reception
- Program and Abstract Book

4 Easy Ways to Register

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Web site: www.foodprotection.org

The early registration deadline is July 6, 2001. After July 6, 2001 late registration fees are in effect. Pick up registration materials on site at the Hilton Minneapolis.

Refund/Cancellation Policy

Registration fees, less a $50 administration fee and any applicable bank charges, will be refunded for written cancellations received by July 13, 2001. No refunds will be made after July 13, 2001; however, the registration may be transferred to a colleague with written notification. Refunds will be processed after August 13, 2001. Additional tickets purchased are nonrefundable.

Exhibit Hours

Sunday, August 5, 2001	—	8:00 p.m. – 10:00 p.m.
Monday, August 6, 2001	—	9:30 a.m. – 1:30 p.m. 3:00 p.m. – 6:30 p.m.
Tuesday, August 7, 2001	—	9:30 a.m. – 1:30 p.m.

Hotel Information

For reservations, contact the hotel directly and identify yourself as an International Association for Food Protection Annual Meeting attendee to receive a special rate of $129 per night, single or double. Make your reservations as soon as possible; this special rate is available only until July 6, 2001

Hilton Minneapolis
1001 Marquette Avenue
Minneapolis, Minnesota 55403
612.376.1000
1.800.HILTONS

Evening Events

Sunday, August 5, 2001

Opening Session (7:00 p.m. – 8:00 p.m.)

Cheese and Wine Reception (8:00 p.m. – 10:00 p.m.)

Monday, August 6, 2001

Exhibit Hall Reception (5:00 p.m. – 6:30 p.m.)

Monday Night Social, **Mississippi Dinner Cruise** (6:00 p.m. – 10:00 p.m.)

Tuesday, August 7, 2001

Chanhassen Dinner Theatre (5:30 p.m. – 11:00 p.m.)

Minnesota Twins Baseball Game (6:00 p.m. – 10:00 p.m.)

Wednesday, August 8, 2001

Awards Banquet (7:00 p.m. – 9:30 p.m.)

Daytime Tours

(Lunch included in all daytime tours)

Sunday, August 5, 2001

Twin Cities Highlights (9:30 a.m. – 2:30 p.m.)

Monday, August 6, 2001

Historic Stillwater (9:30 a.m. – 3:30 p.m.)

Tuesday, August 7, 2001

Mansions & Museums (9:30 a.m. – 3:30 p.m.)

International Association for
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Des Moines, IA 50322-2863, USA
Phone: 800.369.6337 • 515.276.3344
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Attendee Registration Form

August 5-8, 2001
Minneapolis, Minnesota

Name (Print or type your name as you wish it to appear on name badge) _____ Member Number: _____

Title _____ Employer _____

Mailing Address (Please specify: ❒ Home ❒ Work) _____

City _____ State/Province _____ Country _____ Postal/Zip Code _____

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❒ First time attending meeting Member since: _____

❒ Regarding the ADA, please attach a brief description of special requirements you may have.

❒ IAFP occasionally provides Attendees' addresses (excluding phone and E-mail) to vendors and exhibitors supplying products and services for the food safety industry. If you prefer NOT to be included in these lists, please check the box.

PAYMENT MUST BE RECEIVED BY JULY 6, 2001 TO AVOID LATE REGISTRATION FEES

REGISTRATION FEES:	MEMBERS	NONMEMBERS	TOTAL
Registration (Awards Banquet included)	$ 275 ($325 late)	$415 ($465 late)	_____
Association Student Member*	$ 45 ($ 55 late)	Not Available	_____
Retired Association Member*	$ 45 ($ 55 late)	Not Available	_____
One Day Registration: ❒ Mon. ❒ Tues. ❒ Wed.	$ 155 ($180 late)	$210 ($235 late)	_____
Spouse/Companion* (Name): _____	$ 45 ($ 45 late)	$ 45 ($ 45 late)	_____
Children 15 & Over* (Names): _____	$ 25 ($ 25 late)	$ 25 ($ 25 late)	_____
Children 14 & Under* (Names): _____	FREE	FREE	_____
*Awards Banquet not included			

EVENTS:		# OF TICKETS	
Student Luncheon (Sunday, 8/5)	$ 5 ($ 10 late)	_____	_____
Monday Night Social, Mississippi Dinner Cruise (Monday, 8/6)	$ 39 ($ 44 late)	_____	_____
Children 14 and under	$ 34 ($ 39 late)	_____	_____
Chanhassen Dinner Theatre (Tuesday, 8/7)	$ 75 ($ 80 late)	_____	_____
Minnesota Twins Baseball Game (Tuesday, 8/7)	$ 21 ($ 26 late)	_____	_____
Awards Banquet (Wednesday, 8/8)	$ 45 ($ 50 late)	_____	_____
DAYTIME TOURS: (Lunch included in all daytime tours)			
Twin Cities Highlights (Sunday, 8/5)	$ 40 ($ 45 late)	_____	_____
Historic Stillwater (Monday, 8/6)	$ 47 ($ 52 late)	_____	_____
Mansions & Museums (Tuesday, 8/7)	$ 49 ($ 54 late)	_____	_____

Payment Options:

❒ Check Enclosed ❒ VISA ❒ ❒

Name on Card _____

Signature _____

TOTAL AMOUNT ENCLOSED $ _____
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JOIN TODAY AND SAVE!!!
(Attach a completed Membership application)
(See page 268 of this issue for a membership application)

Expiration Date _____

EXHIBITORS DO NOT USE THIS FORM

CONTRIBUTE to the Fourth Annual Foundation Fund Silent Auction Today!

The Foundation of the International Association for Food Protection will hold its Annual Silent Auction during IAFP 2001, the Association's 88th Annual Meeting in Minneapolis, Minnesota August 5-8, 2001. The Foundation Fund supports the:

- Ivan Parkin Lecture
- Travel support for exceptional speakers at the Annual Meeting
- Audiovisual Library
- Developing Scientist Competition
- Shipment of volumes of surplus *JFP* and *DFES* journals to developing countries through FAO in Rome

Support the Foundation by donating an item today. A sample of items donated last year included:

- Food Safety Videos
- California Salted Pistachios
- Pearl Necklace
- Missouri Country Sugar Cured Ham
- New Jersey Devils Hockey Jersey
- Waterford Crystal Vase
- IAFP Polo Shirts
- Wine

Complete the form and send it in today. Notification of donated items must be received by June 15, 2001 to be listed in the Program and Abstract Book.

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SPONSORSHIPS

We invite you to participate as a sponsor for IAFP 2001. Sponsorship participation provides an excellent opportunity to position your company or organization as a supporter of the Association.

Several exciting opportunities are available this year. Please review the event listing to select the one that will best position your organization. Reservations will be considered in order received for any open sponsorship events.

Sponsorship Event List

Full Support	Partial Support	Event
$16,000	$5,000 - $9,000	Monday Evening Social
$13,000	$5,000 - $7,000	Opening Reception Wine (Sunday)
$13,000	$5,000 - $6,000	Exhibit Hall Reception (Monday)
$7,500	$3,500 - $4,000	Leather Badge Holders w/Lanyards
$3,000	$1,000 - $2,000	Exhibit Hall Pastries and Coffee (Monday Morning)
$2,500	$1,250 - $1,500	Exhibit Hall Coffee Break (Monday Afternoon)
$3,000	$1,000 - $2,000	Exhibit Hall Pastries and Coffee (Tuesday Morning)
$2,500	$1,250 - $1,500	Coffee Break (Tuesday Afternoon)
$3,000	$1,000 - $1,500	Coffee Break (Wednesday)
$3,000	$1,000 - $1,500	IAFP New Member Orientation (Saturday)
$3,500	$1,500 - $2,500	Spouse/Companion Hospitality Room
$2,000	$750 - $1,000	Exhibitor Move-in Refreshments (Sunday)
$2,000	$750 - $1,000	Student PDG Luncheon (Sunday)
$1,750	$500 - $800	Awards Banquet Flowers (Wednesday)
$1,500	$500 - $800	Committee Day Refreshments (Sunday)
$1,000	$400 - $750	Speaker Travel Support

SPONSORSHIP PARTICIPANT

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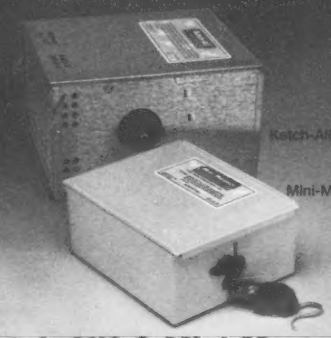

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Coming Events

APRIL

·4-6, **Missouri Milk, Food and Environmental Health Association Annual Educational Conference,** Ramada Inn, Columbia, MO. For additional information, contact Steve St. Clair at 573.221.1166.

·5-7, **International Freshcut Produce Association 14th Annual Conference,** Hyatt Regency Phoenix, Phoenix, AZ. For more information, call Stephanie Grunenfelder at 703.299.6282 or fax: 703.299.6288.

·16, **3-A Sanitary Standards Committee Annual Meeting,** Sheraton Four Points Hotel, Milwaukee Airport. For more information, contact Tom Gilmore at 703.761.2600; E-mail: tgilmore@iafis.org or Philomena Short at 703.761.2600; E-mail: pshort@iafis.org.

·17, **Upper Midwest Dairy Industry Association Meeting,** Best Western Hotel, North Mankato, MN. For further information, contact Paul Nierman at 612.785.0484.

·17-18, **Food Safety Summit and Expo,** Marriott Wardman Park, Washington, D.C. For additional information, call 800.746.9646.

·18, **Upper Midwest Dairy Industry Association Meeting** Holiday Inn Alexandria, Alexandria, MN. For further information, contact Paul Nierman at 612.785.0484.

·19, **Indiana Environmental Health Association, Inc. Spring Conference,** Valle Vista, Greenwood, IN. Contact Helene Uhlman at 219.853.6358 for further information.

·20-22, **Voorjaarsdagen Congress 2001,** Netherlands Association for Companion Animal Medicine, Amsterdam RAI, The Netherlands. For additional information, contact Ms. J. Grootenboer at 31.30.253.5479; fax: 31.30.253.3667; E-mail: vjd@fbu.uu.nl.

·22-25, **American Dairy Products Institute (ADPI) and American Butter Institute (ABI) Announce 2001 Joint Annual Meeting,** at the Hyatt Regency O'Hare Hotel, Rosemont, IL. For additional information, contact Dr. Warren S. Clark, Jr., ADPI at 312.782.4888; fax: 312.782.5299; E-mail: adpi@flash.net.

·23-25, **HACCP: A Basic Concept for Food Protection,** Rutgers University, Cook College, New Brunswick, NJ. For more information, contact Rutgers at 732.932.9271 or fax: 732.932.8726.

·24-30, **16th International Trade Fair for Packaging Machinery, Packaging and Confectionery Machinery,** Düsseldorf, Germany. For more information, contact Messe Düsseldorf North America, phone: 312.781.5180; Fax: 312.781.5188.

·26, **Guelph Food Technology Centre Trade Show — Innovation & Change in the Food Industry.** For further information, contact Cliona Reeves at phone: 519.821.1246; fax: 519.836.1281; E-mail: gftc@uoguelph.ca.

·26-27, **HACCP Validation & Verification: An Advanced Workshop,** Rutgers University, Cook College, New Brunswick, NJ. For more information, contact Rutgers at 732.932.9271 or fax: 732.932.8726.

·26-29, **Association of Water Technologies Regional Training Seminar West,** at the DoubleTree Hotel, Phoenix, AZ. For more information, call 800.858.6683.

·27, **Fifth Annual Symposium on Industrial and Fermentation Microbiology,** Radisson Center, LaCrosse, WI. Contact Dr. S. N. Rajagopal at 608.785.6976; fax: 608.785.6959; E-mail: rajagopa.s@uwlax.edu.

MAY

·8-9, **Food Plant Sanitation Workshop,** Seattle, WA. For additional information, contact AIB International, at phone: 785.537.4750; fax: 785.537.1493.

·14-16, **Practical HACCP for Food Processors,** Oak Brook, IL. Designed for food processors of all types. For additional information, contact Silliker Laboratories Group, Inc., at 800.829.7879 or fax 708.957.8405.

·15-16, **Pennsylvania Association of Milk, Food and Environmental Sanitarians Annual Conference,** Nittany Lion Inn, University Park, PA. For further information contact, Gene Frey at 717.397.0719.

·15-17, **Penn State Food Microbiology Short Course, Detection and Control of Foodborne Pathogens,** University Park, PA. For more information, contact Dr. Hassan Gourama at 610.396.6121; E-mail: hxg7@psu.edu or Dr. Catherine Cutter at 814.865.8862; E-mail: cnc3@psu.edu.

·28-29, **HACCP I: Documenting Your HACCP Prerequisite Program,** Guelph Food Technology Centre, Guelph, Ontario, Canada. For more information, phone 519.821.1246; fax: 519.836.1281; E-mail: gftc@uoguelph.ca.

JUNE

·4-6, **Texas Association of Milk, Food and Environmental Sanitarians Annual Meeting,** Holiday Inn South, Austin, TX. For further information, contact Ron Richter at 979.845.4409.

·7-8, **HACCP Workshop,** Minneapolis, MN. For additional information, contact AIB International, at phone: 785.537.4750; fax: 785.537.1493.

·10-14, **Values in Decisions on Risk Symposium,** held in Stockholm. The symposium will

address the role of experts, media and regulators in complex decisions. For further information, contact Kjell Andersson, phone: 46.8.510.14755; fax: 46.8.510.14756; E-mail: kjell.andersson@karintakonsult.se.

• **13-15, Expo Dairy Show, Lacteo's 2001,** Expo Guadalajara, Guadalajara, Mexico. For further information, phone 564.70.40/564.70.68; fax: 52.5.564.03.29; E-mail: gefemani@iwm.com.mx.

• **13-15, NIZO Dairy Conference on Food Microbes 2001,** Ede, The Netherlands. For more information, contact Jane Macmillan at 44.1865.245685.

• **14-17, Seafood China Expo 2001,** Dalian Xinghai Convention and Exhibition Centre, Dalian, China. For additional information, contact Ms. Ling Chan at 852.2865.2633; Fax: 852.2866.1770; 2865.5513; or E-mail: enquiry@bitf.com.hk.

• **20-22, 2nd International Brew & Beverage Processing Technology & Equipment Exhibition for Asia,** at Singapore International Convention & Exhibition Centre. For additional information, phone 852.2865.2633; fax: 852.2866.1770; E-mail: brew@bitf.com.hk.

JULY

• **6-13, International Workshop and Mini-Symposium on Rapid Methods and Automation in Microbiology XXI,** Kansas State University, Manhattan, KS. For further information, contact Daniel Y. C. Fung at 785.532.5654; Fax: 785.532.5681; E-mail: dfung@oznet.ksu.net.

• **13, HACCP: An Executive Summary,** Guelph Food Technology Centre, Guelph, Ontario, Canada. For more information, phone 519.821.1246; fax: 519.836.1281; E-mail: gftc@uoguelph.ca.

AUGUST

• **3-4, IAFP Workshops,** Minneapolis, MN. See the next issue of *DFES* for more information.

• **5-8, IAFP 2001, the Association's 88th Annual Meeting,** Minneapolis, MN. Registration materials available in this issue of *DFES* on page 253 or contact Julie Cattanach at 800.369.6337; 515.276.3344; fax: 515.276.8655; E-mail: jcattanach@foodprotection.org. Visit our Web site at **www.foodprotection.org** for the most current Annual Meeting information.

• **22-26, The National Society for Healthcare Food Service Management (HFM) Annual Conference,** at The Saddlebrook Resort in Tampa, FL. For additional information, contact Sheila Crowley at 202.546.7236; E-mail: smc@hfm.org.

SEPTEMBER

• **13-15, 2nd International Mastitis & Milk Quality Symposium,** Vancouver, British Columbia, Canada. For additional information, contact National Mastitis Council, 608.224.0622; fax: 608.224.0644; E-mail: nmc@nmconline.org.

• **25-26, Wisconsin Milk and Food Sanitarians Association 2001 Joint Conference,** Chula Vista Resort and Conference Center, Wisconsin Dells, WI. For further information, contact Kathy Glass at 608.263.6935.

International Association for Food Protection

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Des Moines, IA 50322-2863, USA
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International Association for Food Protection

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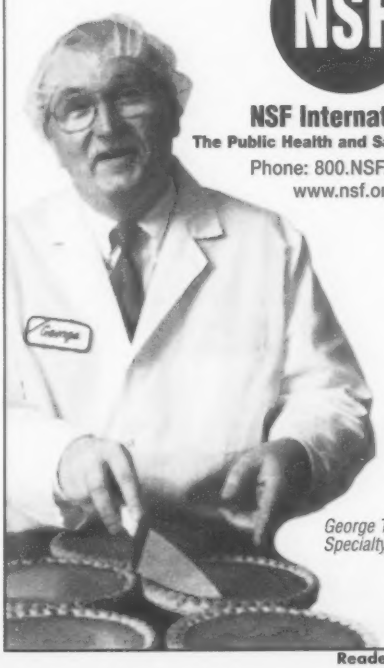

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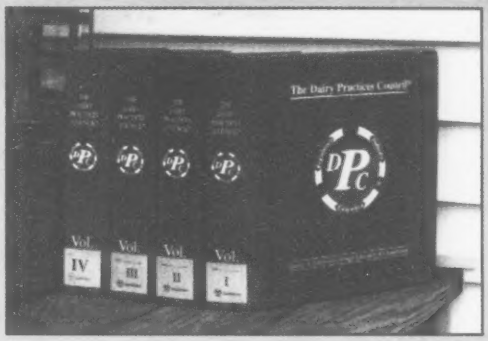

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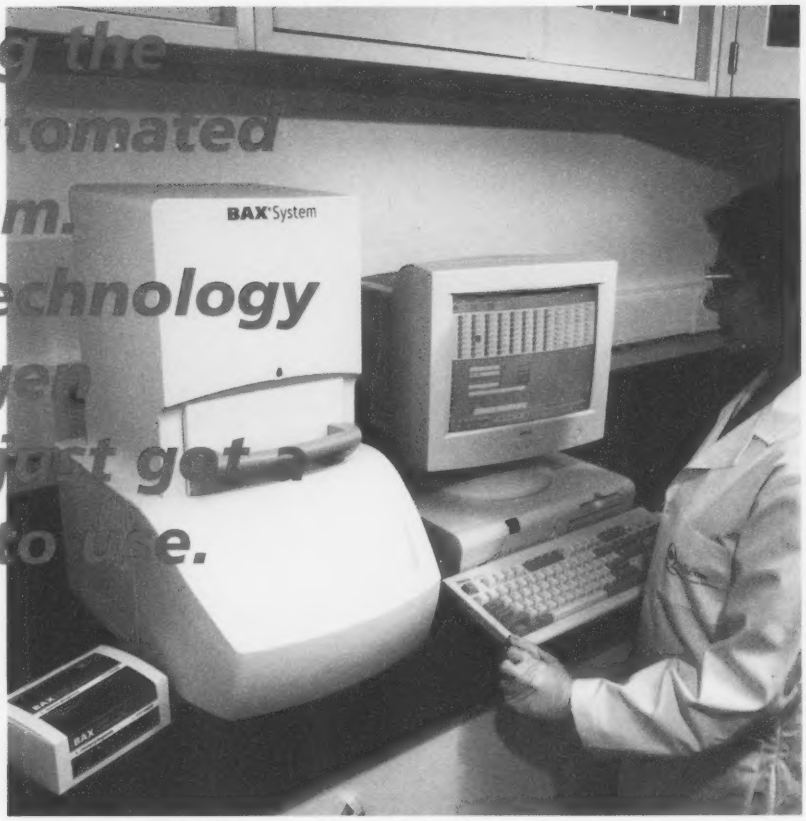

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